FINAL

Community Environmental Response Facilitation Act (CERFA) Report

Former Nike Site
Aberdeen Proving Ground, MD

Prepared for

U.S. ARMY ENVIRONMENTAL CENTER
ABERDEEN PROVING GROUND, MARYLAND 21010

Prepared by

ENVIRONMENTAL RESOURCES MANAGEMENT, INC.
855 Springdale Drive
Exton, PA 19341

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This report presents the results of the Community Environmental Response Facilitation Act (CERFA) investigation conducted by Environmental Resources Management (ERM) at the former Nike site, Aberdeen Proving Ground, a U.S. Government property selected for closure by the Base Realignment and Closure (BRAC) Commission under Public Laws 100-526 and 101-510. Under CERFA (Public Law 102-426), Federal agencies are required to identify expeditiously real property that can be immediately reused and redeveloped. Satisfying this objective requires the identification of real property where no hazardous substances or petroleum products, regulated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), were stored for one year or more, known to have been released, or disposed.

The former Nike Site is a 102-acre site located at Aberdeen Proving Ground, Maryland. The former Nike missile site was operational from 1954-1973. Prior to that time, it was used for chemical munitions training and testing. Operations of environmental concern include chemical weapon testing and training, and maintenance and repair of missiles and other equipment. ERM reviewed existing investigation documents; U.S. Environmental Protection Agency (EPA), State, and county regulatory records; environmental data bases; and title documents pertaining to the former Nike site during this investigation. In addition, ERM conducted interviews and visual inspections of the former Nike site as well as visual inspections of and data base searches for the surrounding properties.

Information in this CERFA report was current as of April 1994. This information was used to classify the installation as one category of parcels: CERFA Disqualified, as defined by the Army.

The total BRAC property acreage at the former Nike site is 102.22 acres. Areas of the facility that have no history of CERCLA-regulated hazardous substance or petroleum product release, disposal, or storage for one year or more; and no history of other environmental hazards (such as asbestos, radon gas, lead-based paint, unexploded ordnance, radionuclides, or not in-use equipment containing polychlorinated biphenyls), are categorized as CERFA Parcels. No CERFA Parcels were identified.

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ACRONYMS AND ABBREVIATIONS

AA	Aberdeen Area
ACM	Asbestos Containing Material
AEHA	Army Environmental Hygiene Agency
AMC	U.S. Army Materiel Command
AMCCOM	U.S. Army Armament, Munitions, and Chemical Command
APG	Aberdeen Proving Ground
AREE	Area Requiring Environmental Evaluation
AST	Aboveground Storage Tank
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFA	Community Environmental Response Facilitation Act
CFR	Code of Federal Regulations
CN	Chloroacetophenone
CW	Chemical Warfare
CWS	U.S. Army Chemical Warfare School
DSHE	Directorate of Safety, Health, and Environment
EA	Edgewood Area
EPA	Environmental Protection Agency
ERM	Environmental Resources Management
ERNS	Emergency Response Notification System

FOIA	Freedom of Information Act
FS	Feasibility Study
FY	Fiscal Year
HE	High Explosive
IRP	Installation Restoration Program
LBP	Lead-based Paint
MDARNG	Maryland Army National Guard
MDE	Maryland Department of the Environment
MOA	Memorandum of Agreement
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
^{o}F	Degrees Fahrenheit
PA	Preliminary Assessment
PCB	Polychlorinated Biphenyl
POL	Petroleum, Oil, and Lubricant
ppb	Parts Per Billion
ppm	Parts Per Million
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RI	Remedial Investigation
SI	Site Inspection
TCE	Trichloroethene

TECOM	Test and Evaluation Command
USAEC	U.S. Army Environmental Center
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
USDA	U.S. Department of Agriculture
UST	Underground Storage Tank
UXO	Unexploded Ordnance
WP	White Phosphorous
WWI	World War I
WWII	World War II

EXECUTIVE SUMMARY

This report presents the results of the Community Environmental Response Facilitation Act (CERFA) investigation conducted by Environmental Resources Management (ERM) at the former Nike site, Aberdeen Proving Ground, a U.S. Government property selected for closure by the Base Realignment and Closure (BRAC) Commission under Public Laws 100-526 and 101-510. Under CERFA (Public Law 102-426), Federal agencies are required to identify expeditiously real property that can be immediately reused and redeveloped. Satisfying this objective requires the identification of real property where no hazardous substances or petroleum products, regulated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), were stored for one year or more, known to have been released, or disposed.

The former Nike Site is a 102-acre site located at Aberdeen Proving Ground, Maryland. The former Nike missile site was operational from 1954-1973. Prior to that time, it was used for chemical munitions training and testing. Operations of environmental concern include chemical weapon testing and training, and maintenance and repair of missiles and other equipment.

ERM reviewed existing investigation documents; U.S. Environmental Protection Agency (EPA), State, and county regulatory records; environmental data bases; and title documents pertaining to the former Nike site during this investigation. In addition, ERM conducted interviews and visual inspections of the former Nike site as well as visual inspections of and data base searches for the surrounding properties.

Information in this CERFA report was current as of April 1994. This information was used to divide the installation into two categories of parcels: CERFA Disqualified Parcels and CERFA-Excluded Parcels, as defined by the Army.

The total BRAC property acreage at the former Nike site is 102.22 acres. Areas of the facility that have no history of CERCLA-regulated hazardous substance or petroleum product release, disposal, or storage for one year or more; and no history of other environmental hazards (such as asbestos, radon gas, lead-based paint, unexploded ordnance, radionuclides, or not in-use equipment containing polychlorinated biphenyls), are categorized as CERFA Parcels. No CERFA Parcels were identified.

Areas of the facility that had no evidence of CERCLA-regulated hazardous substance or petroleum product release, disposal, or storage for

one year or more, but contained other environmental hazards (such as asbestos, radon gas, lead-based paint, unexploded ordnance, radionuclides, or not in-use equipment containing polychlorinated biphenyls) were categorized as CERFA Qualified Parcels. No CERFA Qualified Parcels were identified.

Areas of the facility, for which there is a history of release, disposal, or storage for one year or more of CERCLA-regulated hazardous substances or petroleum products or had a release of the other environmental hazards identified above were categorized as CERFA Disqualified Parcels. The entire 102.22-acre Nike site was determined to be a CERFA Disqualified Parcel.

Areas on the facility that will be retained by the Federal Government or that have already been transferred by deed are categorized as CERFA Excluded Parcels. None of the property is CERFA Excluded.

The primary objective of CERFA is satisfied by the identification of CERFA Parcels and CERFA Qualified Parcels. As a result, concurrence has been sought from the regulatory agencies on these two categories of parcels. This CERFA Report has been reviewed by the U.S. Army Environmental Center (USAEC), EPA Region III, and the Maryland Department of the Environment (MDE). Comments received from regulatory agencies and USAEC's response to these comments are located in the Appendix. Concurrence on this report was received from MDE.

This report contains maps that summarize the categorization of the former Nike site on the basis of the above definitions. This Executive Summary should be read only in conjunction with the complete CERFA Report for this installation. The CERFA Report provides the relevant environmental history to substantiate the parcel categorization. This report does not address other property transfer requirements that may be applicable under the National Environmental Policy Act (NEPA), nor does it address natural resource considerations such as the threat to plant or animal life.

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

Public Laws 100-526 and 101-510 designated more than 100 Department of Army facilities for closure and realignment. As a result, it became necessary to expedite the environmental investigation and cleanup process, as necessary, prior to the release and reuse of Army Base Realignment and Closure (BRAC) property. The BRAC environmental restoration program was established in 1989 with the first round (BRAC 88) of base closures and continued with subsequent rounds (BRAC 91, BRAC 93, etc.). The BRAC program is patterned after the Army's Installation Restoration Program (IRP), except that it has been expanded to include such categories of contamination as asbestos, radon, polychlorinated biphenyls (PCBs), and others that are not normally addressed under the Army IRP.

The BRAC environmental restoration program begins by conducting enhanced Preliminary Assessments (PAs). The term "enhanced" is used to distinguish these assessments from previous IRP preliminary assessments since the BRAC PAs are conducted from a property transfer perspective and evaluate areas which are not included in the IRP (e.g., asbestos, radon, PCBs). The enhanced PAs include reviews of existing installation documents, regulatory records, and aerial photographs; a site visit and visual inspection; and employee interviews. Enhanced PAs were conducted for BRAC 88 and BRAC 91 installations, and are currently underway at BRAC 93 installations. An Enhanced PA was prepared for the former Nike site in March 1990 by the Environmental Assessment and Information Sciences Division of Argonne National Laboratory under the direction of USAEC (formerly the U.S. Army Toxic and Hazardous Materials Agency [USATHAMA]).

In October 1992, Public Law 102-426, the Community Environmental Response Facilitation Act (CERFA) amended Section 120 (h) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and established new requirements with respect to contamination assessment, cleanup, and regulatory agency notification/concurrence for federal facility closures. CERFA requires the federal government, before termination of federal activities on real property owned, to identify property where no hazardous substances were stored, released, or disposed of. Also, the designation must be concurred with by the appropriate regulatory agency (U.S. Environmental Protection Agency for National Priority List (NPL) bases and state for non-

NPL bases). These requirements retroactively affect the Army BRAC 88 and BRAC 91 environmental restoration activities, and are being implemented at BRAC 93 sites concurrently with their enhanced PAs. The primary CERFA objective is for federal agencies to expeditiously identify real property offering the greatest opportunity for immediate reuse and redevelopment. Although CERFA does not mandate the Army transfer real property so identified, the first step in satisfying the objective is the requirement to identify real property where no CERCLA-regulated hazardous substances or petroleum products were stored, released, or disposed.

ERM was awarded the task to identify real property where no CERCLA-regulated hazardous substances or petroleum products were stored, released, or disposed at twelve BRAC 88 sites. Under this task, an Execution Plan was developed to describe the process in satisfying the CERFA task objective. The purpose of this report is to present the findings for the former Nike site at Aberdeen Proving Ground, Maryland.

1.2 *DEFINITION OF TERMS*

The following definitions are used to categorize and label parcels identified on the installation:

- CERFA Parcel - A portion of the installation real property for which investigation reveals no evidence of storage for one year or more, release, or disposal of CERCLA hazardous substances, petroleum, or petroleum derivatives and no evidence of being threatened by migration of such substances. CERFA Parcels include areas where PCB containing equipment is in operation, but there is no evidence of release. CERFA Parcels also include any portion of the installation which once contained related environmental, hazard, or safety issues including unexploded ordnance (UXO) located on firing ranges or impact areas, radon, stored (not in-use) PCB containing equipment, asbestos contained within building materials, radionuclides contained within products being used for their intended purposes, and lead-based paint applied to building material surfaces, but which have since been fully remediated or removed.
- CERFA Qualified Parcel - A portion of the installation real property for which investigation reveals no evidence of storage for one year or more, release, or disposal of CERCLA hazardous substances, petroleum, or petroleum derivatives and no evidence of being threatened by migration of such substances. Parcel does, however, contain related environmental, hazard, or safety issues including unexploded ordnance (UXO) located on firing ranges or impact areas, radon, radionuclides contained within products being used for their

intended purposes, asbestos contained within building materials, lead-based paint applied to building material surfaces, or stored (not in use) PCB-containing equipment.

- CERFA Disqualified Parcel - A portion of the installation real property for which investigation reveals evidence of a release, disposal, or storage for more than one year of a CERCLA hazardous substance, petroleum, or petroleum derivative; or a portion of the installation threatened by such a release or disposal. CERFA Disqualified Parcels also include any portion of the installation where PCB, asbestos containing material, lead-based paint residue, radionuclides, or any ordnance has been disposed of, and any locations where chemical ordnance has been stored. Additionally, CERFA Disqualified Parcels include any areas in which CERCLA hazardous substances or petroleum products have been released or disposed of and subsequently fully remediated.
- CERFA Excluded Parcel - A portion of the installation real property retained by the Department of Defense, and therefore not explicitly investigated for CERFA. CERFA Excluded Parcels also include any portions of the installation which have already been transferred by deed to a party outside the federal government, or by transfer assembly to another federal agency.

The following labels are used in conjunction with the identified parcels. Each parcel is given a unique number to which the appropriate labels are attached.

- P = CERFA Parcel
- Q = CERFA Qualified Parcel
- D = CERFA Disqualified Parcel
- E = CERFA Excluded Parcel

EXAMPLE: 4P indicates that the fourth parcel is in the CERFA Parcel category.

The presence of related environmental, hazard, and safety issues, responsible for placing a parcel in the CERFA Qualified Parcel category, is indicated by the following labels:

- A = Asbestos
- L = Lead-Based Paint

- P = PCB
- R = Radon
- X = Unexploded Ordnance (UXO)
- RD = Radionuclides

EXAMPLE: 5Q-L indicated that the fifth parcel is in the CERFA Qualified Parcel category because of the presence of lead-based paint.

The following designations are used to indicate the type of contamination or storage present in a parcel. Conditions responsible for placing a parcel in the CERFA Disqualified category are indicated by the following:

- PR = Petroleum Release
- PS = Petroleum Storage
- HR = Hazardous Release
- HS = Hazardous Storage

EXAMPLE: 12D-HR indicates that the twelfth parcel is in the CERFA Disqualified category because of evidence of hazardous release.

For all parcels, (P) [i.e., P with parentheses around it] is used to indicate that the presence of the contamination is possible, but that data is unavailable for verification.

EXAMPLE: 9Q-A(P) indicates that the ninth parcel is in the CERFA Qualified Parcel category because of the possible presence (unverified) of ACM.

OTHER EXAMPLES:

Parcel label 15D-HR/PS/A(P) indicates that the 15th parcel is in the CERFA Disqualified category based on evidence of a hazardous substance release and petroleum storage. It also contains possible ACM.

Parcel label 8Q-X/R indicates that the eighth parcel is in the CERFA Qualified Parcel category because of the presence of unexploded ordnance and radon.

1.3 GEOGRAPHICAL/ENVIRONMENTAL SETTING

The former Nike site, approximately 100 acres of which are proposed for excess, is located in the northeast portion of the Edgewood Area (EA) of Aberdeen Proving Ground (APG) in Harford County, Maryland. Within the EA, the Nike site is situated in the Lauderick Creek area, formerly known as the School Field Area. See Figures 1.3-1 and 1.3-2.

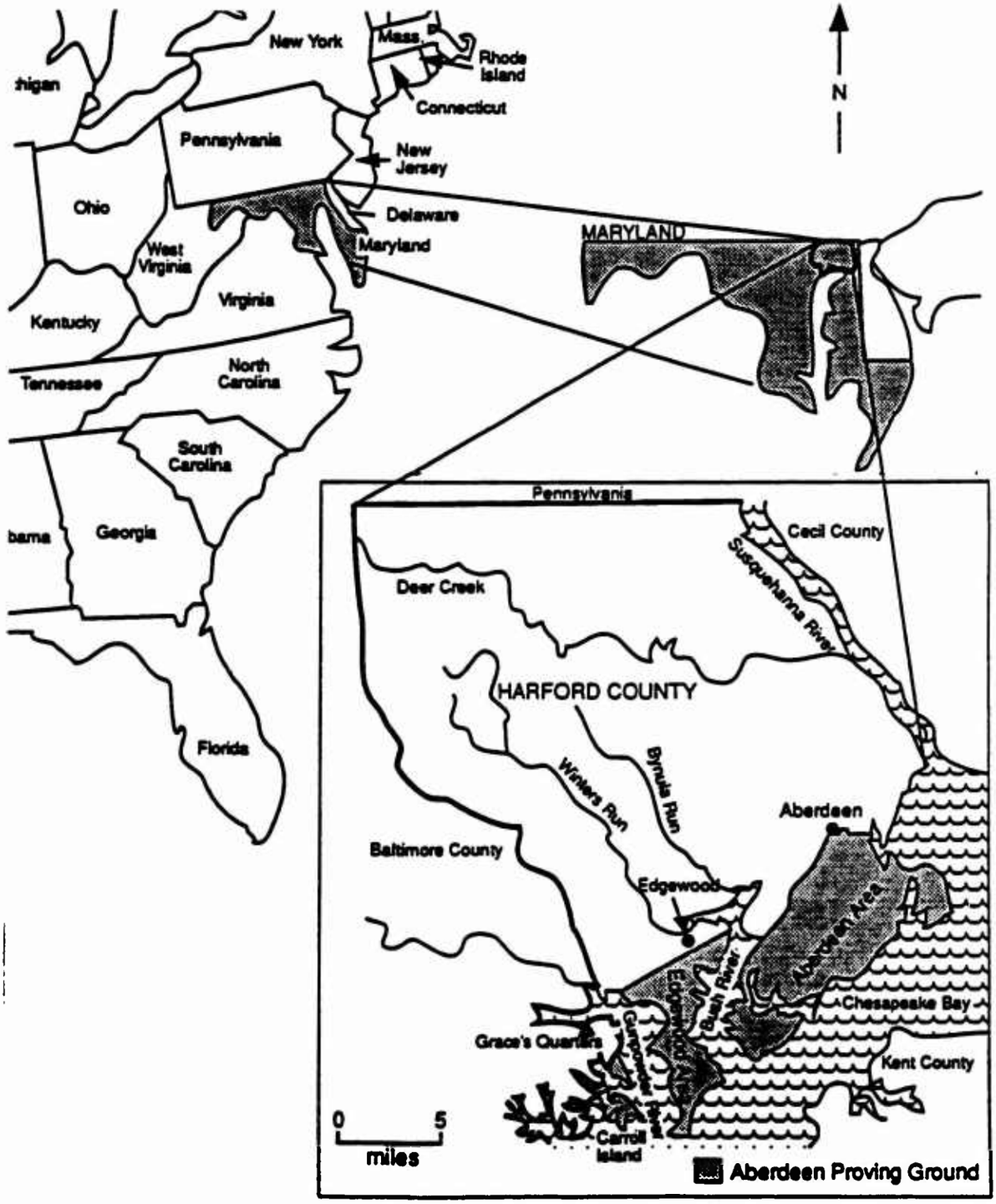
The former Nike site is part of the APG installation. APG became an Army installation in October 1917. Currently, as a Test and Evaluation Command (TECOM) installation within the U.S. Army Materiel Command (AMC), APG has as its principal mission to test and evaluate U.S. Army materiel; it also hosts several tenant Army organizations. The installation is located near the head of Chesapeake Bay. The entire installation (Aberdeen and Edgewood area complexes) is comprised of about 79,000 acres. Much of this land is submerged or marshy, or comprised of wooded terrain. The remaining land is low-lying and flat to gently rolling.

The APG installation is divided into two geographic sections separated by the Bush River: the Aberdeen Area (AA), in the southeastern part of Harford County, just south of the city of Aberdeen; and the EA, in the southwestern part of the county, to the south of the City of Edgewood.

The three principal areas of population (all in Harford County) within commuting distance of the Aberdeen-Edgewood complex are: the Aberdeen region, population 29,000, located near the entrance of the AA on Route 40; the Bel Air sector, population 30,800, situated at the intersection of U.S. Route 1 and State Routes 22 and 24, 15 miles northwest of the AA, 10 miles north of the EA; and the Edgewood-Joppatowne complex, population 28,000, which extends north, east, and west of the entrance to the EA. The community of Edgewood is located somewhat less than 1 mi west of the former Nike site. The northern boundary of the Nike site coincides with the APG installation boundary. Immediately north of this boundary across the intervening railroad tracks is the residential subdivision of Willoughby Woods.

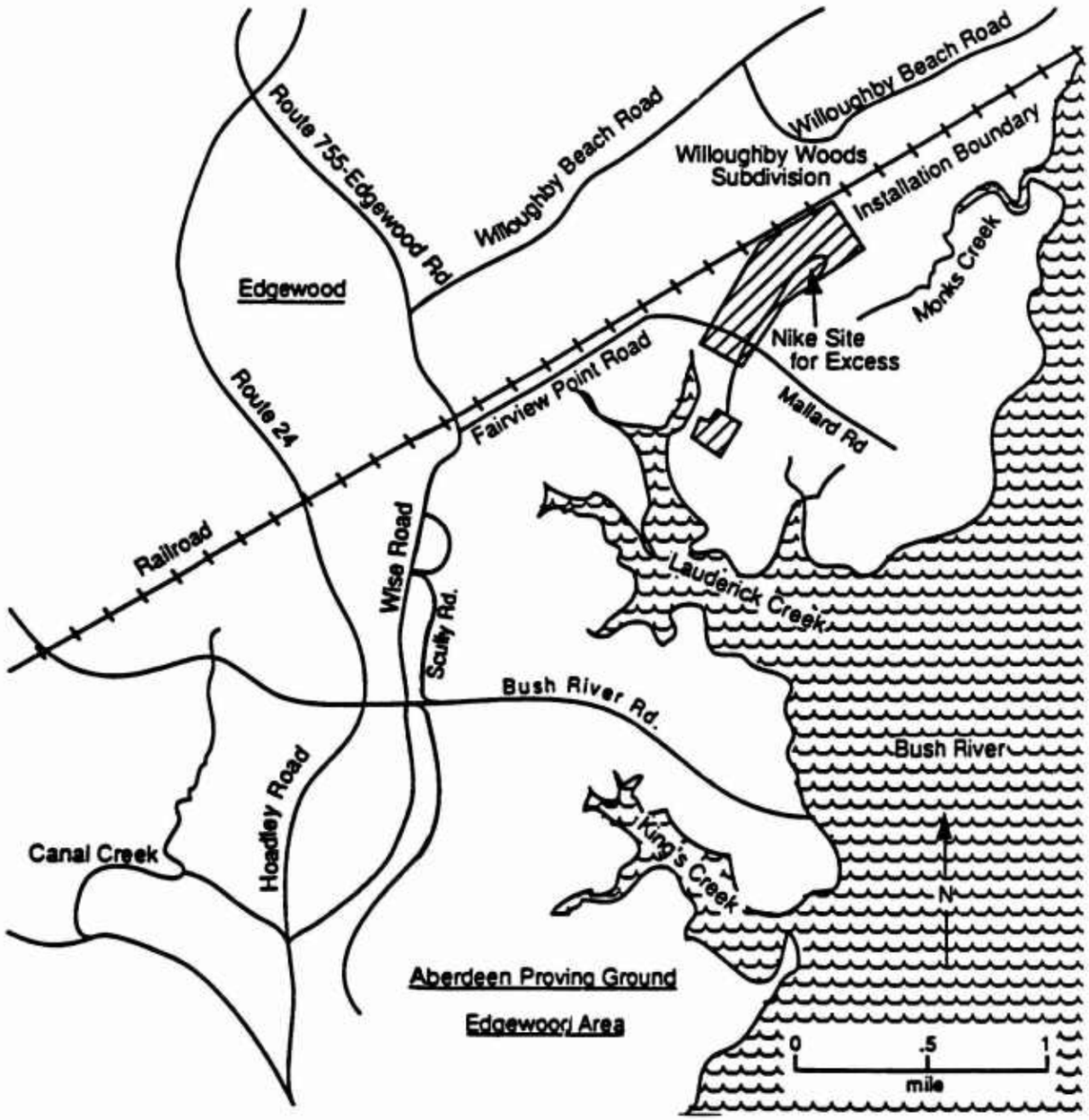
Located just off U.S. Route 40, approximately 21 miles northeast of Baltimore, the EA can be reached by highway and rail transportation. The EA occupies the entirety of Gunpowder Neck, a 9-mile long peninsula in the Chesapeake Bay; Pooles Island, 1/2 mile off the southern tip; and two smaller peninsulas, Grace's Quarters and Carroll Island, which are separated from the rest of Edgewood Area by the Gunpowder River (the Baltimore-Harford County line).

Figure 1.3-1
Location of Aberdeen Proving Ground Area
(Aberdeen and Edgewood Areas)
Aberdeen Proving Ground, Maryland



Source: "Enhanced Preliminary Assessment Report: Former Nike Site, APG MD," Argonne National Laboratory, March 1990.

Figure 1.3-2
Location and Vicinity of Former Nike Site in the APG/Edgewood Area
Aberdeen Proving Ground, Maryland



Source: "Enhanced Preliminary Assessment Report: Former Nike Site, APG MD," Argonne National Laboratory, March 1990.

The 100-acre portion of this area proposed for excess includes the former missile launch and administration/barracks areas, but does not include the integrated fire control area of the former Nike site. The boundaries of the area proposed for excess are not precise and have not been surveyed (Figure 1.3-3).

The 100 acres of APG land proposed for excess are bordered on the northwest by the APG installation boundary, which lies along the Penn Central railroad tracks, and on all other sides by APG land. The surrounding upland is covered with mostly trees and bushes. On the northeast side, less than 1,000 feet from the Nike Site, is marshy land which is transversed by Monks Creek, a tributary to Bush River. The southwestern and southern boundaries are marshy land, fed by tributaries of Lauderick Creek. There is no surface water within the 100 acres proposed for excess. The Edgewood Area of APG added to the Environmental Protection Agency's National Priority List (NPL) of Superfund Sites in February 1990.

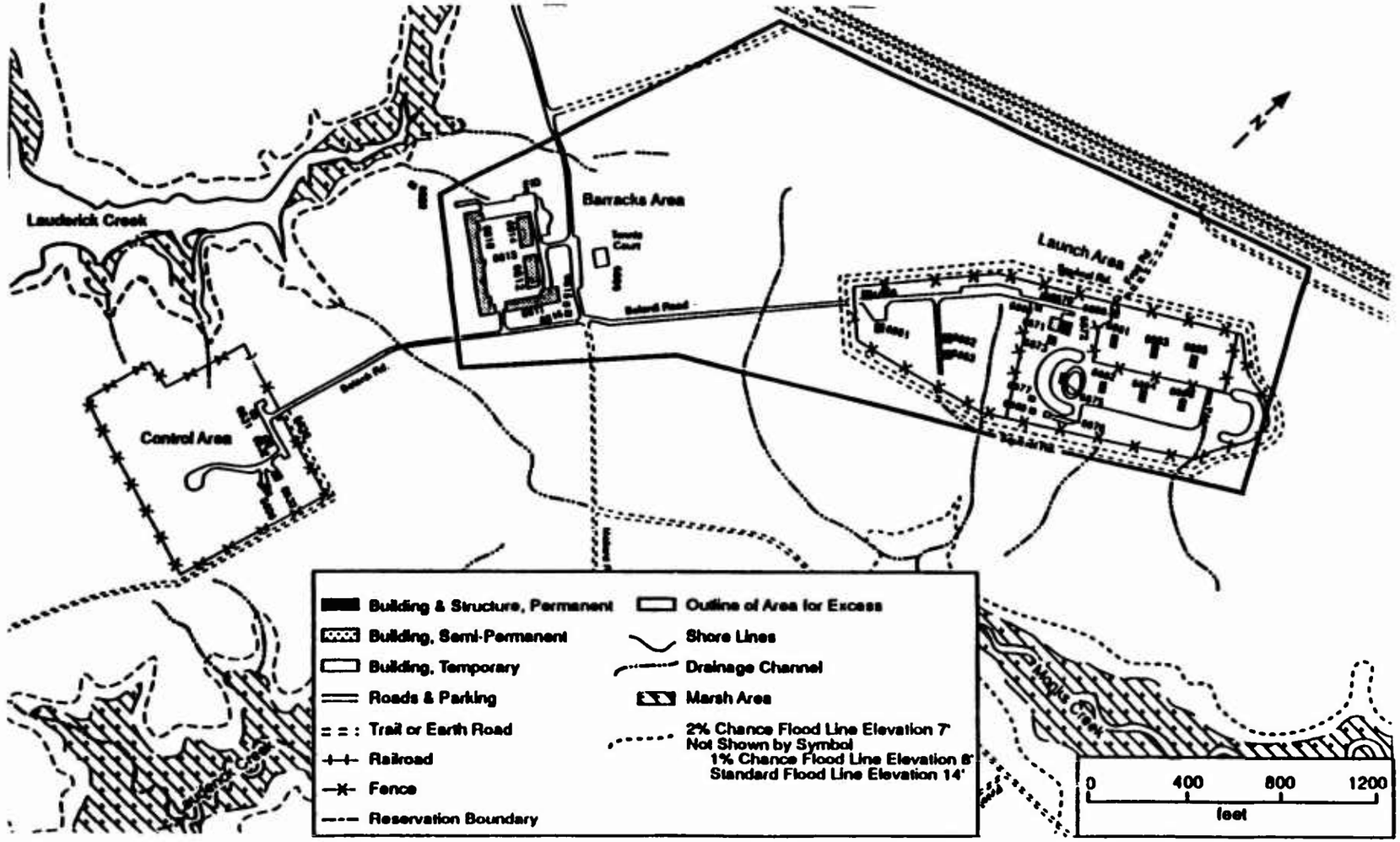
The area where the former Nike site is located is characterized by a humid mesothermal climate, accompanied very often with cold dry continental winds. The climate is warm and temperate, characterized by a great deal of rain and no dry season.

Because of its location, topography, proximity to the Atlantic Ocean, and shelter from the Appalachian Mountains, the area receives a summer flow of warm, moist air from the south that contributes to high temperatures and humidity and provides moisture for frequent thunderstorms. Frequent changes in area weather are responsible for much of the rainfall. Precipitation is uniformly distributed throughout the year, with the heaviest intensities usually in summer and early spring.

July is the warmest month, January the coldest. Snowfalls occur only an average of 25 days each year, with heaviest snowfalls in January. The probability of a tornado is small. The area may come under the influence of tropical storms or hurricanes approximately once a year during storm season (June to October), with the greatest likelihood of occurrence in August or September.

The area lies within the Coastal Plain physiographic province of eastern Harford County which is adjacent to Chesapeake Bay and its tributaries. Elevations in the general vicinity of Lauderick Creek and the former Nike site, rise from sea level adjacent to the creek, to 40 ft. in and around the missile launch area. The terrain is generally characterized by gently rolling hills and fingers, which are separated by shallow draws and depressions and cut by several branches of Lauderick Creek and Monks Creek. The overall slope of the terrain is to the south and east toward

Figure 1.3-3
Former Nike Site Facilities
Aberdeen Proving Ground, Maryland



Source: "Enhanced Preliminary Assessment Report: Former Nike Site, APG MD," Argonne National Laboratory, March 1990.

Lauderick Creek, the Bush River, and Chesapeake Bay, with lesser slopes to Monks Creek and branches of Lauderick Creek in the vicinity of the Nike site.

The geology of the Edgewood Area is comprised of coastal plain sediments forming a series of concentric bands subparallel to the fall line, underlain by old crystalline basement rock sloping to the east and south. The fall line is the physiographic boundary, located just north of the site boundary, between the younger and softer sediments of the Coastal Plain and the old, early Paleozoic, resistant crystalline rocks of the Piedmont Plateau. The sediments were probably formed/deposited in the Cretaceous and Quaternary periods. They slope southeasterly, generally by less than one degree, increasing to a thickness of several hundred to a thousand feet beneath the eastern shore of the Chesapeake Bay. The thickness of the sedimentary deposits in two borings southwest of the Nike site were 365 and 402 feet; however, thickness varies depending upon location downslope (southeast) from the fall line. The crystalline basement rocks slope 75 feet per mile; the Potomac Group of sediments, which is Cretaceous in age, has an overall slope of 10 feet per mile; and the Talbot Formation, which is Pleistocene in age and occupies the higher ground, slopes 1-2 feet per mile.

The soils in the vicinity of the former Nike site are primarily of the Sassafras Loam series with Elkton soils to the northeast and southwest, and with some Tidal Marsh in the areas nearest the surface drainage systems (the northernmost branches of Lauderick, and along Monks Creek).

Shallow test borings, completed during construction and modification of the former Nike site, identified a 4 to 8 ft. thick layer of peat underlying the northeastern half of the launch area at a depth of about 30 ft. The boring logs from the drill holes in the administration/barracks area identified more characteristics of the Elkton series with less sand, and greater percentages of clay.

Drainage is generally in a southerly and southwesterly direction towards Lauderick Creek, and southeasterly towards Monks Creek and the Bush River. Marshes and tidal areas lie along the various branches of Lauderick Creek and Monks Creek. Drainage in the former fire control area is channeled to surface drains which discharge overland into the marsh area at the head of Monks Creek. Drainage in the fire control and administration/barracks areas (including leach field drainage) collects in natural drainage ways discharging to various branches of Lauderick Creek.

Movement of shallow ground water (and therefore migration of contaminants) in the vicinity is expected to be toward nearby surface drainage systems. The movement in the vicinity of the launch control area is expected to generally southeasterly toward Monks Creek. It is assumed that there is no sizable off-site pumpage of water in close proximity to the former Nike site.

The former Nike site receives water from the EA through a main 3-in. iron cast pipe. The water is stored in a 26,000-gallon ground tank (Bldg. 6815) and pumped (at Bldg. 6816). It is distributed through 2.5 in. iron cast pipes to various consumption points.

The former Nike site is located in a cleared forest area. This area is primarily surrounded by woodlands, of which many are in advanced stages of succession. Virginia pine stands represent an important forest stand in the woodlands, with sweetgum, yellow poplar, red maple, and oak species present. The marsh lands in the area are considered virgin, and contain river bulrush, cattail, and wild rice plants. An abundance of aquatic species can be found in the swamps of the area, with restricted beds of wild (water) celery and numerous algal species. More than 20 herbaceous species have been reported for the area, and close to a hundred woody species, 23 of which are abundant.

Nearly 30 mammalian species are found in the area, of which five are abundant. More than 190 bird species are known on the installation's land, and a dozen are common. The area lies on the Atlantic Flyway and offers large water surfaces and wetland for domestic and migratory waterfowl (the Whistling Swan winters at some sites). Canadian Geese and thousands of ducks land and live on the shallow estuarine waters of the area. Large numbers of Red-Winged Blackbirds, Bluebirds, Brown-headed Cowbirds and Common Grackles are found there.

More than 20 reptile species and more than 15 amphibian species make their homes here. Nearly 20 fish species live in the waters. The estuarine waters provide a major mating ground for the Blue Crab and a major spawning area for the Stripped Bass, Shad, Herring, and White and Yellow Perch.

A rare fish, the Maryland Snail Darter, which appears on the Federal Endangered Species list, is found in a few creeks in southeastern Harford County. It is not known whether the creeks within EA represent suitable habitat for this species. Another rare species, the Bog Turtle, listed as endangered by the State of Maryland, possibly occurs in this area. The Bald Eagle, an endangered species, maintains an active nesting site on Monks Creek, near the Nike site..

An area located to the northeast of the former Nike site under investigation has been designated the Willoughby Woods Locally Significant Habitat Area. This area, which is on the northern side of the Penn Central rail line and therefore does not directly border the Nike site, is considered significant because its concentration of vernal pools provides a breeding habitat for several species of amphibians and reptiles that are vernal pool specialists.

2.0 *SCOPE OF INVESTIGATION*

The scope of the CERFA investigation includes:

- Review of previous environmental investigations, assessments, reports, etc.
- Review of applicable government regulatory records: federal, state, and local (where applicable and available).
- Interviews with representatives from the installation (or command responsible for the installation), other federal agencies, regulatory officials, and others.
- Review of maps and aerial photographs (where available).
- Inspection of adjacent property that potentially could contaminate the BRAC property.
- Detailed site inspection (the scope of these site inspections was determined principally by the review of previous investigations and assessments).
- Review of recorded chain of title documents.

These seven activities are specifically included within the statutory scope of CERFA. All seven activities were conducted during the CERFA investigation at the former Nike site.

2.1 *EXISTING INVESTIGATION DOCUMENTS*

The nature and duration of operations at the former Nike site has resulted in a number of studies assessing the environmental conditions at the site. The documents listed below were used as the primary sources of information on current and previous investigations throughout the CERFA process.

1. *U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) Enhanced Preliminary Assessment Report: Former Nike Site, Aberdeen Proving Ground, Maryland*, Argonne National Laboratory, March 1990.

2. *Final Sampling Design Plan for Remedial Investigation/Feasibility Study at Former Nike Site, Aberdeen Proving Ground, Maryland*, Dames & Moore, November 1990.

3. *Geohydrologic Study No. 38-26-1353-90, RCRA Facility Investigation, Nike Missile Battery Site, Aberdeen Proving Ground, Maryland,* U.S. Army Environmental Hygiene Agency (AEHA), July 1986 - January 1990.

4. *Site-Specific Work Plan - Delivery Order 13, Remediation of the Six Nike Missile Silos at Edgewood Area, Aberdeen Proving Ground, Maryland,* Baltimore District, U.S. Army Corps of Engineers (USACE), May 1993.

5. *Edgewood Cluster 1 (Nike Site) Remedial Investigation (RI) Sampling Results (Round 1),* General Physics Corporation, December 1992.

6. *Edgewood Cluster 2 (Nike Site) Remedial Investigation (RI) Sampling Results (Round 2),* General Physics Corporation, March 1993.

7. *Installation Assessment Army Base Closure Program (Text and Photos),* Environmental Monitoring Systems Laboratory, Office of Research and Development, U.S. Environmental Protection Agency (EPA), September 1989.

8. *Environmental Assessment for Base Closure of Former Nike Missile Site, Aberdeen Proving Ground, Harford County, Maryland,* USACE, Baltimore District, January 1991.

9. *Detailed RI Work Plan for Cluster 1, Edgewood Area, Aberdeen Proving Ground, Maryland,* USACE, Baltimore District, October 1992.

10. *Installation Assessment of Aberdeen Proving Ground,* Volume I, Report No. 101, USATHAMA, September 1976.

11. *Installation Assessment of Aberdeen Proving Ground,* Volume II, Report No. 101, USATHAMA, September 1976.

2.2 *GOVERNMENT REGULATORY RECORDS*

Federal Records

Regulatory records were reviewed at the EPA Region III in Philadelphia, Pennsylvania. The EPA review was conducted on 1 and 4 October 1993. Information collected from EPA corroborated the information obtained from the documents listed in Section 2.1 above and the CERFA site visit. No new information regarding releases or the potential for environmental contamination of the site was uncovered. Reports were obtained regarding remediation of a diesel fuel UST at Building 6871 in the Launch

Area and the sampling of continuing discharges from a sand filter bed in the Barracks Area to Lauderick Creek.

A search of the EPA's Emergency Response Notification System (ERNS) database over the period 30 January-2 February 1994 identified no reports of releases of oil or hazardous substances at the former Nike site since the inception of the database in 1986. ERNS collects information on releases reported to Federal authorities.

State Records

Regulatory records were reviewed at the Maryland Department of the Environment (MDE) in Baltimore, Maryland on 28 October 1993. No new areas of environmental concern were identified through this review.

NRC Records

The Nuclear Regulatory Commission (NRC) has never issued a license to work with radioactive material at any portion of the Nike site.

AEHA Records

A records search conducted by AEHA revealed no reports regarding the use of radioactive materials at the former Nike site.

2.3 *INTERVIEWS*

Table 2.3-1 provides a summary for those individuals interviewed during the CERFA investigation.

2.4 *VISUAL INSPECTIONS*

The CERFA site visit was performed by representatives of ERM in the company of Captain Gary Pease, the USAEC Project Officer. On-foot visual inspections of both the barracks area and the launch area were carried out on 27 September 1993. The marked locations of USTs in the barracks area were noted. The perimeter of the barracks area was traversed. Property just outside the BRAC parcel to the southwest of the barracks area (this area contained old sand filter beds as part of the sanitary sewer system) was investigated because of its proximity and connection to the barracks area.

On-foot inspection of the launch area was limited to the property to the west of the missile silos. At the time of inspection, the removal of

Table 2.3-1
List of Interviewees for Nike APG CERFA Assessment

Interview No.	Date	Name	Telephone	Organization/Position	Length of Service
I-1	9/27/93	Captain Gary Pease	(410) 671-1606	U.S. Army Environmental Center Nike APG CERFA Project Officer	3 Years
I-2	9/27/93	Don Green	(410) 671-4841	APG Directorate of Safety, Health, and Environment (DSHE) Deputy Program Manager, IRP	8 Years
I-3	9/93 to 12/93	Terri Kaltenbacher	(410) 671-2910	APG DSHE Environmental Associate	6 Months
I-4	9/93 to 12/93	Don Klebes	(410) 978-0553	Roy F. Weston, Inc. Site Safety Officer, Silo Remediation Project	5 Years
I-5	9/93 to 12/93	John Hayden	(410) 278-4756	APG Installation Safety Office Safety Specialist	11 Years
I-6	9/93 to 10/93	Kim Fillinger	(410) 278-9950	APG DSHE Environmental Protection Specialist	4 Years
I-7	9/93 to 12/93	John Fairbank	(410) 631-3459	Maryland Department of the Environment Remedial Project Manager - Nike APG	4 Years
I-8	9/93 to 12/93	Steve Hirsh	(215) 597-0549	EPA Region III Remedial Project Manager - Nike APG	15 Years
I-9	9/93 to 12/93	Lt. Ted Himmelberg	(410) 576-1483	Maryland Army National Guard Environmental Specialist	3 Years
I-10	9/28/93	Lt. Joseph Gutierrez	(410) 576-1483	Maryland Army National Guard Environmental Specialist	3 Years
I-11	10/1/93 to 10/4/93	Maureen Zacharias	(215) 597-2842	U.S. Environmental Protection Agency Region III Freedom of Information Act (FOIA) Officer	
I-12	10/28/93	Donald Mauldin	(410) 631-3000	MDE Waste Management Administration FOIA Liaison	

standing water from the silos in preparation for their closure had been in progress for two weeks. Because of this ongoing operation, the silos and surroundings were not accessible to inspection. The remainder of the property in the launch area and the silo-pumping operation were observed from a distance.

Inspection of the open land between the launch area and the barracks area (containing abandoned sanitary sewer lines) was conducted from a vehicle along Belardi Road, as was inspection of wooded property adjacent to the road. Because of the potential risk posed by unexploded ordnance (UXO), at no time did any member of the inspection team enter a wooded area. UXO warning signs are posted throughout the property.

Inspection of the off-installation residential development located directly opposite the Nike site launch area to the north of the Penn Central railroad tracks was also conducted by vehicle. This development represents the population closest to the Nike site.

Aerial photographs covering periods prior to construction, during Nike operations (1954-1973), and after operation shutdown were also reviewed to identify areas of potential damage.

2.5 *TITLE DOCUMENTS*

ERM conducted a review of tract maps and transfer documents to identify the prior property owners of the former Nike site at the time of its transfer to the Army. The purpose of this review was to collect additional information concerning the property's prior use and environmental condition at the time of its transfer to the Army. Based on this review, no additional information was collected. Previous ownership and the dates of transfer to the Army are indicated on Figure 5.2-1.

3.0 *PROPERTY BACKGROUND INFORMATION*

This section provides a description of the BRAC property and a discussion of its operational history (Section 3.1), and a description of any changes to environmental conditions since the last environmental assessment or investigation (Section 3.2).

3.1 *PROPERTY DESCRIPTION AND OPERATIONAL HISTORY*

The former Nike site at APG was active from approximately 1954 to 1973. The site consisted of three separate areas--the fire control (outside of the BRAC area), missile launch, and administration/barracks areas. The missile launch area contained six missile silos, in contrast to three missile silos in a typical Nike battery. Missile maintenance activities also were based in the launch area. The fire control area contained the radar, electronic, and communications equipment necessary for target identification and acquisition, target tracking, missile launch, and missile guidance. Nike missiles and warheads were shipped to the APG EA site as components, which were then assembled, stored, serviced, and readied in the magazines for firing. The administrative/barracks area contained headquarters, general quarters, mess service and recreational facilities for personnel and staff assigned to the Nike battery. The Nike battery was decommissioned in 1973. Few specific details about the former Nike operations are available.

A description of each structure's past use is included in Table 3.1-1. Of particular interest are Buildings 6871 and 6872 (where missile maintenance activities took place); Building 6873 (where JP-4 fueling occurred); Building 6875 (where acid fueling took place); Building 6876 (Acid Storage); and the six missile silos. A crescent-shaped eastern berm near Building 6875 has been partially removed, so that only the southern third remains. Drawings and aerial photographs indicate an identical berm existed east of the missile silos; this berm has been completely removed.

By Presidential proclamation on December 14, 1917 (under authority of an Act of Congress approved October 6, 1917), the Aberdeen Area and the property later desgnated as the Edgewood Arsenal were established as the Ordnance Proving Ground, a permanent military post. On Jan. 9, 1919, it was designated Aberdeen Proving Ground. The original area comprised 29,162 upland acres and 34,600 underwater acres. The APG mission was to conduct acceptance tests on ammunition and materiel, to handle all experimental tests, and to operate the Ordnance School of Application.

Table 3.1-1

Facilities at Former Nike Site
Aberdeen Proving Ground, Maryland

Building	Description (Former Use)	Present User[a]	Size (ft^2)
	Administration/Barracks Area		
E-6810	Adm./General Purpose (Enlisted Men and Officers Quarters)	B	15,846
E-6811	Adm./General Purpose (Enlisted Men and Officers Quarters)	B	7,933
E-6812	Adm./General Purpose (Administration and General Purpose)	B	4,165
E-6813	Bandstand & Pavilion	MDARNG	--
E-6814	Adm./General Purpose (Messhall)	B	4,598
E-6815	Groundwater Storage Tank	MDARNG	--
E-6816	Water Pump Station	MDARNG	241
E-6820	Effluent Chlorination Bldg.	Unused	38
	Missile Launch Area		
E-6860	Sentry Station	MDARNG	39
E-6861	Ready Bldg. (Latrine (Original))	MDARNG	622
E-6862	Radar Pad (25 SY)	MDARNG	-
E-6863	Radar Pad (105 SY)	MDARNG	-
E-6869	General Storage	MDARNG	144
E-6870	Flammable Materials Storage (POLs)	MDARNG	54
E-6871	Electric Power Plant-Oil (Emergency Generators)	MDARNG	1,020
E-6872	Dispatch Office (Missile Assembly and Test Building)	MDARNG	1,380
E-6873	Missile Launch - Storage (Original Operators Shelters - JP-4 Fueling)	MDARNG	68
E-6875	Vehicle Storage (Warheading/Acid Fueling)	MDARNG	787
E-6876	General Storage (Acid Storage)	MDARNG	144
E-6877	Kennel	MDARNG	466
E-6880	Sentry Station - razed	MDARNG	119
E-6881	Missile Launch - Storage (Silo #3)	MDARNG	3,841
E-6882	Missile Launch - Storage (Silo #4)	MDARNG	3,659
E-6883	Missile Launch - Storage (Silo #2)	MDARNG	3,841
E-6884	Missile Launch - Storage (Silo #5)	MDARNG	3,659
E-6885	Missile Launch - Storage (Silo #1)	MDARNG	3,659
E-6886	Missile Launch - Storage (Silo #6)	MDARNG	3,659
E-6888	Adm./Supply Bldg. (Sentry Station razed - foundation only)	MDARNG	124
--	Vehicle Wash Rack	Unused	--

[a] MDARNG - Maryland Army National Guard
B - National Guard Bureau

Source: "Final Sampling Design Plan for Remedial Investigation/Feasibility Study at Former Nike Site, APG Maryland," Dames & Moore, November 1, 1990.

Manufacture of chemical munitions at the Edgewood Arsenal commenced on May 4, 1918, and was assigned shortly thereafter to the newly organized Chemical Warfare Service. During the course of World War I (WWI), chloropicrin, phosgene, levenstein mustard gas, and chlorine production facilities, plus associated shell filling plants, were constructed and operated. Chemical munitions production, after WWI, was essentially inactive until 1939, just prior to World War II (WWII). During this period, however, the U.S. Army Chemical Warfare School (CWS) was established (1920), and research and development activities of the CWS were centralized at EA. The Lauderick Creek area of EA was divided into nine "school areas" for the purpose of testing and training. The CWS tested incendiary munitions at the 1,450 acres designated as School Field 3, which is located just to the west and across an arm of Lauderick Creek from what would become the Nike administration/barracks area. School Field 3 is possibly contaminated with napalm-gasoline mixtures, white phosphorous (WP), thermite, and high explosives (HE) from the various munitions stored and tested there. It is possible that the Nike barracks area could have been affected by the activities at School Field 3.

The CWS utilized School Fields 4, 6, and 7, among others, as training sites. These three school fields compass all of the former Nike site areas. The training activities included the use of some portion of the Nike site as an impact area for chemical-filled mortar rounds. Most of the mortar rounds were probably of an incendiary variety, with some perhaps containing chemicals. The most commonly used chemical agents would have been phosgene, mustard gas, and chloropicrin.

It is unlikely that ordnance used in live-firing during or after WWII was filled with lethal Chemical Warfare (CW) agents. Prior to WWII, however, a small portion would have contained the agents. Most CW-related ordnance recovered from the area was filled with tear gas, liquid smoke, white phosphorous, high explosives, and inert fills. Most tear gases would be chloroacetophenone (CN) or solutions of CN and materials including benzene, chloroform, carbon tetrachloride, and chloropicrin. Liquid smokes would include titanium tetrachloride and a mixture of sulfur trioxide and chlorosulfonic acid.

In addition, the CWS probably utilized the school fields as a chemical contamination, decontamination, identification, and material impregnation training area. This type of training would involve the use of CW agents for contamination, and chemicals related to agent decontamination (i.e., chlorinated lime, STB, HTH, 1,1,2,2-tetrachloroethane, 1,3-dichloro-5,5-dimethylhydantoin, and possibly chlorinated solvents such as chloroform during the 1920s) to neutralize the identified agents. Additionally, other chemicals such as N,N-dichloro-bis-(2,4,6-trichlorophenyl) urea (CC2), and 1,1,2,2-tetrachloroethane were

probably used to impregnate and launder protective clothing, Chlorobenzene was prinicipally used in connection with field laboratories.

From 1939 to 1942, during the buildup and mobilization for WW II, approximately 6,800 acres adjacent to the installation were acquired. In 1940, the Fort Hoyle Military Reservation became part of Edgewood Arsenal, bringing the total size of the Arsenal to more than 5,000 acres. In 1942, Edgewood Arsenal was designated as the Chemical Warfare Center, and in 1945, the name of the installation was changed to the Army Chemical Center. Since WW II, the arsenal has remained active to some degree as a commodity management center, R&D center, and depot; during the Korean and Vietnam wars, limited active manufacturing was resumed.

During the Korean War (1950-53), the Ordnance Training Command was established, and the Ordnance School was placed under this Command. In 1962, the Ordnance Training Command was discontinued and replaced by the U.S. Army Materiel Command. In 1975, the U.S. Army Materiel Command became the U.S. Army Materiel Development and Readiness Command; its name later reverted back to the U.S. Army Materiel Command.

In 1962, with the organization of the U.S. Army Materiel Command, the Army Chemical Center once again became Edgewood Arsenal, and the U.S. Army Chemical-Biological-Radiological Agency was organized. In 1971, the arsenal real property was combined with the neighboring APG-Aberdeen Area.

Nike antiaircraft missiles were deployed nationally in the early 1950s to protect major cities and strategic installations from aerial attack. Typically, Nike batteries were located in rural areas encircling the protected area. Generic information on the ground-to-air missile program has been compiled in two studies, one commissioned by USACE and the other by USATHAMA, the predecessor to USAEC. Both reports note the limited amount of specific information regarding the generation and subsequent disposal of wastes associated with Nike missiles.

At its zenith, the Nike program included 291 batteries located throughout the continental United States. The entire Nike program was completely phased out by 1976. Some properties were excess and sold to private concerns or handed over to local communities for nominal fees. Many were turned over to state national guards.

Nike Ajax missiles were first deployed in 1954 at installations throughout the continental United States, replacing, or in some cases, augmenting conventional artillery batteries and providing protection from aerial attack

for strategic resources and population centers. The Ajax was a two-stage missile using a solid-fuel booster rocket and a liquid-fuel sustainer motor to deliver high-powered explosives to airborne targets.

Nike Hercules missiles were introduced in 1958 and gradually replaced the Ajax. The Hercules was also a two-stage missile, differing from the Ajax in that its second stage was a solid-fuel rather than liquid-fuel power source and its payload was normally a nuclear warhead. Ajax-to-Hercules conversions took place between 1958 and 1961. A third-generation missile, the Zeus, was under development when the Nike program was phased out. The Zeus was never deployed.

Unknown quantities of UXO, resulting from Chemical School training activities in the Lauderick Creek area, were found during excavation and construction of the Nike site in the late 1950s. The munitions were recovered and detonated. At that time only a small portion of the Lauderick Creek area was cleared of UXO. Since that time, there have been surface surveys in the area for UXO. As these past surveys were only surface sweeps limited to visual inspection, it is suspected that there is still a fairly substantial amount of UXO below the surface. Liquid-filled and WP rounds have been found as recently as the fall of 1993.

The Nike site is part of approximately 1,530 acres that have been leased to the MDARNG for an indefinite period for training purposes. The 100-acre BRAC portion of this area proposed for excess includes the former missile launch and administration/barracks areas but does not include the integrated fire control area of the former Nike site. The barracks area includes an existing septic tank, but does not include the sand filter beds or a small detention chamber/chlorination building (Building 6820 on site maps). While these facilities served the barracks area during operations and are in close proximity to it, they are located slightly outside the boundary of the BRAC property. The sand filter beds associated with the launch area sanitary sewage system are included in the property to be assessed.

The Nike site has historically accommodated two Guard activities. The four large buildings in the former Nike administration/barracks area have been used as offices by the National Guard Operating Activity Center. The remaining portions of the site, including the former fire control and missile launch areas, as well as other surrounding land in the Lauderick Creek Area, are leased by the MDARNG for training purposes.

The MDARNG has used two of the launch area buildings, 6872 and 6873, for equipment storage. The remaining structures are abandoned; some are boarded up and others have been razed. A dismantled helicopter on the tarmac surface has been used for embarkation and debarkation training.

During the period of Nike activity, routine disposal methods in the launch area for solvents, hydraulic fluids, and battery acids included dumping into sumps, which then fed either into the sanitary sewage system or were pumped back to the surface into concrete-lined surface drainage ditches, where movement would then be directly into the unlined surface drainage system and subsequently to surface water. The sanitary sewer from the launch area traveled the length of the Nike site to the fire control area, where it combined with the fire control sanitary sewer for ultimate discharge into Lauderick Creek. The sanitary sewer in the barracks area discharged separately into Lauderick Creek. Both sewer systems included sand filter beds. In the case of the launch area sewage system, it is possible that significant amounts of the aforementioned substances were disposed of through the sewage network. At various points along the network, release to the shallow ground water would be possible due to leakage and backup in the system, and the eventual infiltration from the sand filter beds.

Reported discharges from the barracks area sand filter bed into Lauderick Creek were investigated in early 1991. The discharge originated at the septic system for the barracks area, which was subsequently disconnected from the sand filter bed. Analysis showed that the discharge most likely consisted of ground water mixed with drinking water and probably resulted from infiltration into the sand filter bed. The only contaminants identified, chloroform, bromodichloromethane, and zinc, are commonly found in drinking water at APG. When necessary, the septic tank is cleaned and the contents removed for discharge to the APG wastewater treatment system. Current plans are for the sand filter bed to be blocked off and the outfall to Lauderick Creek removed. However, such an action will require the removal of Building 6820, the small detention chamber/chlorination building.

Training in the area known as the school fields, comprising the Nike site, probably included training exercises such as impregnating clothing using a 55-gallon drum of solution (largely tetrachloroethane), with as much as one third or more of the solution being waste later disposed of on the ground and presenting the threat of subsequent migration to the surface water through runoff. Agent-filled UXO in the area also has the potential for release to the surface drainage through leakage as well as the possibility that rounds may have impacted in the surface water itself. However, Nike operations probably had the greater potential for release to the surface water network. The sumps frequently discharged directly to the surface drainage system providing direct access to surface water. Runoff due to rain and waste wash water would have facilitated this access.

The possibility that past disposal practices included land burial of debris and other waste from operations has led to the identification of several potential disposal sites. One, the "South Landfill," is slightly outside the BRAC boundaries and was therefore not included in the CERFA investigation. The "Southwest Landfill," however, is within the confines of the Nike site, located just off the main entrance to the launch area. This site, approximately 2 acres in size, is considered the most likely point for past land disposal. A larger area cleared out of the woods near the western boundary of the Nike site, was initially thought to represent a potential waste burial point. It is now thought to have been used for construction staging or temporary storage of wood and brush. A third area of ground scarring, smaller than the others, is located just to the west of the launch area and has not yet been investigated.

Water and electric power utilities have been provided from sources in EA external to the Nike site. An oil-powered emergency generator was formerly housed in Building 6871, but has been removed. Presently, solid wastes are collected by APG-provided services, and there is no evidence to suggest previous landfilling or similar routine solid waste disposal at the Nike site. The sanitary sewer systems, including sand filter beds, are abandoned in place. Septage is removed from the septic tank in the barracks area for discharge to the APG wastewater treatment plant. The remains of vehicle wash racks exist in the launch area, but are no longer in use.

APG conducts no ongoing operations at the Nike site. Under the terms of its lease agreement with APG, MDARNG is responsible for management of any waste generated during its exercises, with the exception of the septic tank in the barracks area.

At the time of this report, the six missile silos had undergone remediation under the supervision of APG and the MDE. Standing water pumped from the silos in preparation for their closure was managed by Chemical Waste Management, Inc. as a RCRA hazardous waste (characteristic for lead). More information on the silo remediation is included in Section 4.1.

3.2 *CHANGES TO REAL PROPERTY ENVIRONMENTAL CONDITIONS SINCE ENHANCED PA INVESTIGATION*

Since the preparation of the Enhanced Preliminary Assessment (PA), a diesel fuel UST associated with Building 6871 in the launch area (missile maintenance facilities) has been removed and contaminated soil excavated. A closure/remediation plan for the six missile silos has been developed and implemented (described in more detail in Section 4.1). Five rounds of sampling for the Nike Site Remedial Investigation (RI)

have been completed. Data from the last two rounds have been reviewed for this report. Discussions with APG officials indicated that data from the later sampling rounds are consistent with data from the first two rounds. A draft RI/FS report was submitted for review by regulatory agencies on 3 December 1993.

Several CERCLA Removal or Remedial Actions are planned for the Nike site. Removal Actions include the cleanup of several surface debris locations along Frog Road. Remedial Actions include the installation of a pump-and-treat system to address ground water contamination, the excavation of the Southwest Landfill, and the removal of sanitary sewer lines. None of these actions had been implemented at the time of this report.

At the time of this report, MDARNG continues to conduct exercises at the Nike site. The National Guard Operating Activity Center, which occupied several of the buildings in the barracks area, has moved off APG property to a new location. A motion has been introduced by Senator Barbara Mikulski (D-Md) to allow the use of the barracks area as a Youth Camp for underprivileged children. The major concern regarding such plans is the suspected presence of chemical and conventional UXO. In addition, such a plan might require extensive renovation of the barracks area. In this case, MDARNG would bear the responsibility for the renovations, which would include addressing asbestos and lead-based paint issues.

4.0 *INVESTIGATION RESULTS*

This section describes the results of the CERFA investigation by identifying areas of environmental concern, both those previously identified in prior investigations and those uncovered as a result of the CERFA site visit. In addition, Section 4 identifies parcels in accordance with the parcel definitions contained in Section 1.2.

The scope and duration of activities at the former Nike site have led to a number of investigations to determine the nature and extent of environmental contamination. AEHA in 1989 conducted a RCRA Facility Assessment (RFA) that addressed the whole Edgewood area of APG and included specifics on previously identified geographic areas of concern.

Concurrent with the preparation of the RFA, AEHA conducted sampling in areas of probable or suspected contamination in and around the former Nike site. This sampling became the basis for the RCRA Facility Investigation (RFI) prepared for the site in 1990. The scope of the sampling effort was relatively comprehensive with regard to the Nike area and included the installation of monitoring wells, shallow soil borings, sediment sampling, and soil gas measurement.

The RFI and the follow-up Enhanced Preliminary Assessment (1990) concluded that the risk and uncertainty posed by the potential presence of UXO would have the most severe impact on considerations of future use of the property. Past disposal practices in the launch area have contributed to soil and ground water contamination, although tenant activities since installation shutdown were not considered to pose a threat to the environment.

The current Remedial Investigation (RI) effort, which began in 1992, has completed five rounds of sampling; data from the first two rounds were reviewed for this report. The first two rounds of sampling collected data from 37 wells; later rounds collected data from seven additional wells, for a total of 44 wells. Round 1, which was conducted from October 16-26, 1992, consisted of this sampling of subsurface soils in 19 locations, completion of soil borings in four locations, and sludge sampling in six locations within the sanitary sewer system serving the entire Nike site (including the fire control area). Round 2, which was conducted from January 18-28, 1993, consisted of the sampling of subsurface soils in 21 locations and surface water and sediment sampling at six locations. A draft RI/FS report was submitted for review by regulatory agencies on 3 December 1993.

4.1 *PREVIOUSLY IDENTIFIED AREAS REQUIRING ENVIRONMENTAL EVALUATION (AREES)*

The past and current investigations described above have confirmed the presence of environmental contamination at a number of locations throughout the Nike site. This section describes conditions at those sites identified in previous investigations. The sites of concern under CERFA are listed below in the order corresponding to the site map, Figure 5.1-1, and the accompanying map table (Table 5.1-1). Although the sites as described below are listed individually, it should be understood that only the first site is numbered because under CERFA, the entire 102-acre BRAC portion of the Nike site is considered a Disqualified Parcel based on the potential presence of chemical UXO. Therefore, all sites on the map and map table are located within CERFA Disqualified Parcel 1. The description of Disqualified Parcel 1 also includes the CERFA identifiers describing the basis for classification.

1. *UXO, Both Conventional and Chemical, Throughout Entire Nike Site [Parcel 1D-HR/HS/PR/PS/A/L(P)/X(P)]*

The known previous use of the Nike site as an impact area in the testing of chemical and conventional munitions presents a special concern for the CERFA investigation. Although past Nike-related activities may have caused limited contamination, primarily due to the known points of release, that contamination is probably limited to those areas. However, past chemical warfare (CW) related releases may be "numerous" and "scattered" throughout the area. UXO and CW agents may in fact be scattered over the entire Nike site and immediate vicinity. UXO containing chemical agents would be considered CERFA Disqualifying. UXO containing conventional explosive agents would be considered CERFA Qualifying.

While records exist documenting the discovery of UXO in the area, these discoveries generally took place during construction, excavation, or other activity. When surface surveys have been conducted, they were limited to visual inspection and did not encompass significant areas of the property. Although there are presently no positively identified UXO on the property proposed for excess, it is probable that surveys or excavations of the subsurface would encounter UXO. Undeveloped wooded areas of the site are posted under the assumption that they contain UXO. The UXO problem could be a serious impediment to release of the property for unrestricted use. The RFI report concluded that clearing the UXO was "not technically or economically feasible."

A UXO survey, completed just prior to this report, is the first comprehensive attempt to locate and map potential UXO (positive

magnetometer readings). The survey was conducted by USACE, Waterways Experiment Station of Vicksburg, Mississippi. The region from the installation boundary between Lauderick Creek and Monks Creek to the fire control area was subdivided into 200 ft x 200 ft squares. This whole region covers approximately 300 acres. The grid squares were marked out, then surveyed by magnetometry. The magnetometer sweeps were performed along parallel transects spaced at approximately ten foot intervals. Readings generally extended to a depth of approximately four feet, although large metal objects or clusters of objects have the potential to show up at greater depths. Positive readings were taken as a sign of potential UXO presence. No excavation or clearance activities are scheduled at this time. Results indicate that positive magnetometer readings within the BRAC property are most frequent in the region to the northwest of Belardi Road, near the entrance to the launch area. Six contiguous grid squares in this region, an area of approximately 5.5 acres, displayed a total of 84 positive readings. No other single grid square within the CERFA parcel showed more than two positive readings. Over the entire 300 acres covered by the survey, approximately 10,000 positive readings were recorded.

Six Former Nike Missile Silos, Launch Area Bldg. #s 6881-6886

Since the closure of the Nike site as an active missile installation, the six missile silos have stood unused. Over a period of years, through a combination of storm water runoff and ground water infiltration, the silos have accumulated significant quantities of water. The suspected presence of lead, hydraulic fluids, and possible PCB and radionuclide contamination in the missile silos resulted in the determination that they should undergo remediation and closure in order to mitigate the potential for hazardous releases to the environment.

Sampling of the six missile silos in May of 1992 in preparation for their closure found that water in all silos was contaminated with lead above RCRA regulatory limits (40 CFR 261.24). PCBs were detected at very low levels in two of the silos. Minor gross alpha and beta contamination was detected, and tritium was found at low levels in all of the silos. Asbestos was also believed to be present in the cement used to construct the silos. One silo had been found during previous investigations to contain measurable levels of trichloroethene (TCE).

The plan for silo remediation called for the removal of the accumulated water, inspection of the silos, and in-place stabilization. At the time of this report, the water has been removed for treatment and disposal as characteristic lead hazardous waste. No TCE was found in any of the silos. Approximately 1.2 million gallons of contaminated water were sent

for management by Chemical Waste Management, Inc. at a permitted treatment facility in New Jersey.

Further inspection and sampling of the silos was conducted to determine the extent of contamination resulting from lead-based paint, PCB-containing hydraulic fluid, and radionuclides. Paint samples taken from the walls and floors of the silos were found to contain high levels of lead, which confirmed that the lead contaminating the standing water originated within the silos. The presence of asbestos-containing material (ACM) within the concrete of the silos was confirmed. Sampling results from the water and from within the silos indicated that PCBs were not present. All radionuclides identified were within background levels.

Under the remediation plan, the silos were encapsulated by filling them with a cementitious grout containing fly ash and aggregate. Encapsulation was the selected management method to reduce the hazard posed by the silos in the event the property is released for use by the public. All six of the silos were backfilled with grout, covered with a cap of concrete and steel rebar and the entire launch pad area covered with asphalt as an additional measure to prevent re-entry.

Building 6871/6872/6873 Launch Area Missile Maintenance Complex

During the period of Nike missile operations, Building 6871 served as the central location for missile maintenance activities. The neighboring building, 6872, also was used for missile maintenance activities. Building 6873 was used for JP-4 fueling of missiles. It was in this vicinity that the disposal practices described in Section 3.1 for spent solvents and petroleum products were most common. The ongoing RI confirms the presence of the solvent TCE in the ground water at this site, centered at Building 6871. Data from sampling rounds 1 and 2 show ground water levels of TCE in excess of 100 micrograms per liter (ug/l). APG personnel indicated that later rounds of sampling confirmed these high levels of TCE in the ground water.

During the site visit in preparation for the Enhanced PA, an extensive area of dead and highly stressed vegetation was observed associated with oily and stained soil below and adjacent to the bent fill pipe of a diesel fuel UST just west of Building 6871. The building, and the ground immediately west of it, are elevated by approximately five feet with respect to a gravel road that runs in a generally north-south direction. The fill pipe was located at the top of a slope which leads to the road. The contaminated area started at the top of the slope immediately below the bent fill pipe and extended down the slope and across the ground at the bottom for a total distance of approximately 10-20 feet. Anecdotal reports

indicated that this condition had existed for at least 2-3 years, and that fresh oil tended to appear mainly during the hot summer months.

The 8,000-gallon diesel fuel UST was removed on 4 April 1991 and 365 cubic yards of contaminated soil were excavated. When the initial "clean" fill was sampled and found to contain significant levels of petroleum hydrocarbons, it was removed. The second load of fill soil was found to be uncontaminated. A monitoring well has been installed and is included in sampling for the ongoing RI. It is unclear whether this UST has contributed significantly to the ground water contamination detected beneath the launch area. It seems likely that past disposal practices for used oils and spent solvents are the major cause, based on the prevalence of TCE in the ground water.

Based on the age of these buildings, asbestos and lead-based paint, both CERFA Qualifiers, are presumed present.

Building 6812 in the Barracks Area

Building 6812 is supplied by an active 1,500-gallon fuel oil UST, located on the southwest side of the building. All of the barracks area buildings are recorded as containing asbestos. The age of the building also indicates that the presence of lead-based paint is a distinct possibility.

During the Enhanced PA investigation, an extensive area of stained soil and dead and highly stressed vegetation was observed in association with the Building 6812 UST. It was not clear at the time of the investigation whether the observed contamination was due to leakage or to unusually extensive spillage and overflow. It has since been established that the tank's integrity is intact (testing was conducted on 16 December 1992), and that the releases were the result of spillage during tank filling. No estimates of the total amount of the release are available. All four of the tanks in the barracks area (see the entries for Buildings 6811 and 6810) have been in service for approximately 30 years. A spokesman for the National Guard, which has tenant status at the barracks area, stated his belief that these tanks should be a priority for replacement, perhaps as early as January 1994.

Building 6811 in the Barracks Area

Building 6811 is supplied by an active 2,000-gallon fuel oil UST, located at the east corner of the building. This tank successfully underwent tightness testing on 8 January 1993. All of the barracks area buildings are recorded as containing asbestos. The age of the building also indicates that the presence of lead-based paint is a distinct possibility.

Building 6810 in the Barracks Area

Building 6810 is supplied by two active 2,000-gallon fuel oil USTs, located at the south and west corners of the building. These tanks successfully underwent tightness testing on 18 December 1992 and 6 January 1993. All of the barracks area buildings are recorded as containing asbestos. The age of the building also indicates that the presence of lead-based paint is a distinct possibility.

ACM was removed from Building 6810 in the barracks area in 1984. The asbestos was associated with the furnace and pipes in the machine room.

Ground Water Contamination Throughout the Launch Area

Ground water contamination exists throughout the launch area, apparently originating from the missile maintenance area centered around Building 6871. The major contaminant is the solvent TCE, which was used extensively during Nike operations. The ground water contamination appears to be moving slowly to the east and southeast, but does not pose an immediate threat to human health or the environment. Eventually, the contamination may reach Monks Creek. The presence of soil and ground water contamination with solvents and petroleum products resulting from past maintenance and disposal practices, described in Section 3.1, has contributed to the designation of the Nike site as part of the larger Edgewood NPL site.

In general, the current RI results confirm the presence of organic contamination in the ground water of the launch area. As expected, the contamination is strongest in the region of Building 6871 in the missile maintenance area. However, organic contamination was not found in either surface water or sediments (all of which are located outside the BRAC property), indicating that the ground water contamination has not yet reached the surface water. Sediment samples were found to contain elevated levels of pesticides, however. Ground water monitoring wells installed along the northern boundary have not resulted in detection of contamination that would indicate migration of contaminants toward the nearest off-installation residential area.

"Southwest Landfill"

This area, approximately 2 acres in size, is located on the opposite side of Belardi Road from Building 6860, near the entrance to the launch area. This site is believed to have been used as a land burial site for debris and other waste material. No records exist to indicate the nature of the material disposed. However, the RFI reports that some empty 55-gallon drums were found at this site. The drums were labeled to indicate that

they had originally contained petroleum-based hydraulic fluid. A radiation survey was conducted as part of the RFI, but no levels above background were detected. Some evidence of contamination with heavy metals was found in the RI analyses. This site is scheduled for more comprehensive investigation.

Launch Area Missile Fueling/Defueling Areas

These two areas are located near Building 6875 and at the opposite end of the launch area, which were within the confines of two horseshoe-shaped berms, one of which has been completely removed. Building 6875 served as the acid fueling station for the missiles. Nike Ajax missiles utilized inhibited red fuming nitric acid as an oxidizer in their liquid fuel systems. Visual evidence of ground contamination from spills and surface disposal of solvents and fuel-related materials has been reported in both the RFI and the Enhanced PA. This surface disposal may have contributed to soil, ground water, and surface water contamination through runoff via unlined surface drainage channels.

Based on the age of Building 6875, asbestos and lead-based paint, both CERFA Qualifiers, are presumed present.

Building 6870 in the Launch Area

This building was used for storage of flammable materials and POL. Based on the age of the building, asbestos and lead-based paint, both CERFA Qualifiers, are presumed present.

Building 6876 in the Launch Area

This building was used for acid storage. Based on the age of the building, asbestos and lead-based paint, both CERFA Qualifiers, are presumed present.

Building 6814/6816 in the Barracks Area

All of the barracks area buildings are recorded as containing asbestos. The age of these buildings also indicates that the presence of lead-based paint is a distinct possibility. This site contains only CERFA Qualifiers, but is included in this section because it is included within a larger Disqualified Parcel.

Buildings 6860/6861 in the Launch Area

Building 6860 is a sentry station and Building 6861 is a former latrine. These two small buildings are located on opposite sides of Belardi Road at

the entrance to the launch area. Based on the age of the buildings, asbestos and lead-based paint, both CERFA Qualifiers, are presumed present. This site is included in this section because it is included within a larger Disqualified Parcel.

Building 6869 in the Launch Area

Building 6869 is a former general storage building. Based on the age of the building, asbestos and lead-based paint, both CERFA Qualifiers, are presumed present. This site is included in this section because it is included within a larger Disqualified Parcel.

Launch Area Sanitary Sewer System

This system, which also includes a sand filter bed, runs from Building 6871 parallel to Belardi Road until it combines with the system from the fire control area. Records indicate that at least part of the sewer line was constructed using ACM. Therefore, the entire system is considered to be CERFA Qualified. This site is included in this section because it is included within a larger Disqualified Parcel.

RI sampling of sludges within the system identified high levels of contamination with organic constituents, most likely resulting from disposal practices at Building 6871. Analyses also detected elevated levels of toxic metals (specifically lead and chromium).

The sanitary sewer is not included in Section 4.1 as a Disqualified Parcel because, under CERFA guidelines, disposal of hazardous substances through such a system does not represent a release or storage. Should further investigation determine that releases have occurred through cracks or breaks in the line, however, the site would then be considered CERFA Disqualified.

4.2 *ADDITIONAL AREAS IDENTIFIED*

No additional areas of environmental concern were identified through the CERFA investigation. The visual signs of contamination (stressed vegetation, the appearance of oil on the surface during the summer months) described in the Enhanced PA as indicating the presence of a leaking UST in the vicinity of Building 6871 in the launch area were confirmed by subsequent investigation. The 8,000-gallon diesel fuel tank was removed in 1991, along with contaminated soil. The extent of contamination associated with the missile silos and the ground water contamination beneath the launch area are currently under investigation.

In addition, several areas identified by previous surveys as potential land disposal sites are slated for full investigation under the current RI. These areas, all of which are located west or southwest of the launch area in (or on the edge of) wooded areas, are expected to be identified as clean fill or construction staging areas, not waste disposal sites. However, insufficient information exists at the time of this report to make a determination. RI efforts at the area known as the "Southwest Landfill" have identified some evidence of contamination. This area is therefore included in the discussion under Section 4.1.

4.3 *ADJACENT/SURROUNDING PROPERTIES*

The Nike site is bounded on three sides by properties belonging to, and remaining with, the Aberdeen Proving Ground. The north-northwestern edge of the site, which is also the northern APG boundary, is bounded by the Amtrak railroad, which separates APG from residential communities within the town of Edgewood. The nearest subdivision, directly across the railroad track, is the community of Willoughby Woods. Additional residential development is in progress. There is no evidence that any activities occurring on these adjacent properties has had any effect on the environmental conditions at the Nike site. While the adjacent APG properties were also employed for chemical warfare training purposes, there is no indication that these activities have resulted in further degradation of the conditions at the Nike site.

However, the identification of ground water contamination beneath the launch area has caused some concern for the potential effects on the adjacent residential communities. While it appears that the flow of ground water is in an east-southeasterly direction, which would keep the contamination within the boundaries of APG until discharge to surface water (Monks Creek is the most likely outlet), regulatory agencies have expressed the concern that installation of community drinking water wells with sufficient capacity to serve the communities under development could cause a shift in ground water flow, thus increasing the risk to residents. Ground water sampling along the APG boundary has not given any indication of migration of hazardous constituents toward these off-base residential areas.

4.4 *RELATED ENVIRONMENTAL, HAZARD, AND SAFETY ISSUES*

Military installations frequently contain issues which the U.S. Army Environmental Center (USAEC) believes fall outside of the provisions of CERFA. For example, while a release of lead-based paint onto the ground may be a CERCLA concern, the application of lead-based paint to a

building surface is generally not. However, lead-based paint applied to buildings may represent a safety hazard to young children. Similarly, other substances or materials commonsly applied to or found in buildings (for example, radon and asbestos) may not be explicitly regulated under CERCLA, but may require a notice to potential transferees and lessees that they exist.

USAEC has sought to balance the statutory requirements of CERFA with the law's intent to identify uncontaminated property to the public which can be expeditiously reused. Notice has been provided for those parcels which appear to be uncontaminated under the definition provided in CERFA, but which may contain environmental, hazard, or safety issues. Buildings which contain asbestos-containing materials, lead-based paint, or naturally occurring radon fall into this category and are identified as "CERFA Qualified Parcels" in this CERFA report. Parcels which contain stored (not in use) equipment containing 50 parts per million (ppm) or more of polychlorinated biphenyl (PCB) oil, low level radionuclide-containing equipment such as dials and weapon site posts, and unexploded ordnance are also designated "CERFA Qualified Parcels".

In those cases, however, where for example, asbestos or PCBs have been disposed in the environment, the parcel has been identified as "CERFA Disqualified". In this example, the designation indicates that a CERCLA hazard may exist at this location.

This section describes those sites that have been determined to be CERFA Qualified based on the presence of environmental, hazard, and safety issues as described above. The last two sites described in Section 4.1, Building 6814 and the launch area sanitary sewer system, are the only two individual areas at the Nike site containing CERFA Qualifying issues only. These sites are included in Section 4.1 because, although they contain only CERFA Qualifiers, they are also included within CERFA Disqualified Parcel 1. Other individual sites containing CERFA Qualifiers as well as Disqualifiers are also discussed in Section 4.1. The remainder of this section is dedicated to a brief general discussion of environmental, hazard, and safety issues at the former Nike site. A listing of buildings and structures at the Nike site that contain CERFA Qualifiers may be found in Table 4.4-1.

Other than UXO, these issues are not considered to represent safety concerns in the event of property transfer. Several of the buildings are known to contain ACM, but they are generally considered to be in good condition and not in need of corrective action. Should any of these buildings be slated for demolition or renovation, however, the ACM should be removed in accordance with appropriate abatement procedures. A thorough survey has not been conducted by APG because the Nike site

Table 4.4-1
Buildings with CERFA Qualifiers
Former Nike Site
Aberdeen Proving Ground, Maryland

Buildings	Qualifiers
6810	A/L(P)
6811	A/L(P)
6812	A/L(P)
6814	A/L(P)
6816	A(P)/L(P)
6881	A/L
6882	A/L
6883	A/L
6884	A/L
6885	A/L
6886	A/L
6860	A(P)/L(P)
6861	A(P)/L(P)
6869	A(P)/L(P)
6870	A(P)/L(P)
6871	A(P)/L(P)
6872	A(P)/L(P)
6873	A(P)/L(P)
6875	A(P)/L(P)
6876	A(P)/L(P)

A Asbestos-containing material
A(P) Asbestos-containing material (possible)
L Lead-based Paint
L(P) Lead-based paint (possible)
R Radon

is under lease to the National Guard and no Memorandum of Agreement (MOA) regarding such a survey has been developed.

PCBs have not been found in electrical transformers at the Nike site. The age of the buildings in the barracks area indicates that LBP may be present, although no testing has been performed. The elevated levels of lead found in the standing water within the missile silos have been determined to result from the presence of LBP. Radon has not been detected at the Nike site. None of these materials pose a serious threat to either human health or the environment.

4.5 *CERFA EXCLUDED PROPERTY*

No portion of the 102 acres of the former Nike site identified for excess under the BRAC program is considered Excluded from the CERFA investigation.

5.0 *SITE PARCELIZATION*

After concluding the review of investigation documents, regulatory records, personnel interviews and visual inspections, ERM identified parcels on the installation as CERFA Parcel, CERFA Qualified Parcels, CERFA Disqualified Parcels, or CERFA Excluded Parcels in accordance with the definitions in Section 1.2. The parcels are delineated on a map of the BRAC portion of the installation using a one-acre square grid for boundary definition.

The Army chose a one-acre grid system to aid in the presentation of data gathered during the CERFA report investigation, and to facilitate use of the document by reuse groups and others. The one-acre grid provided a consistent method to report and locate environmental or other concerns. In the many cases where the concerns are much smaller than one acre, the grid system simplifies the depiction of the concern. Accordingly, the areal extent of many small areas of concern, such as UST sites, are liberally depicted in the CERFA report.

Additionally, the one-acre grid size was chosen as a generally redevelopable parcel size for either industrial or residential uses. However, the grid does not drive reuse nor restrict it. Reuse decisions should be made irrespective of the grid.

The entire one-acre grid square is colored or shaded to indicate the applicable parcel category based on the history of storage or release for any portion of that square. Parcels are labeled according to a system outlined in Section 1.2 of this report to indicate the applicable parcel category and the contaminating circumstances. Parcel labels are connected to the respective parcel boundaries by a line or are located within the parcel boundaries.

Where CERFA Disqualified Parcels and CERFA Qualified Parcels have coincided, the overlapped area has been designated CERFA Disqualified. Labels for any such overlapped parcels also indicate the presence of the qualifying hazards. CERFA Excluded Parcels have been excluded from this investigation of contaminant locations and therefore have no overlapping CERFA Disqualified Parcels or CERFA Qualified Parcels. Structures within CERFA Disqualified Parcels that contain qualifying safety hazards are designated with the applicable qualifying label, where map scale permits this level of detail.

ERM's investigation and subsequent parcelization of the BRAC property at the former Nike site determined that none of the facility falls within the

CERFA Parcel category. The entire 102.22 acres constitute the CERFA Disqualified portion of the installation.

In determining the applicable parcel categories for the installation property, ERM observed the following guidance provided by the USAEC for specific circumstances:

- Buildings constructed prior to 1978 are assumed to contain lead-based paint. A similar assumption is made for asbestos in buildings constructed prior to 1985.
- Storage of petroleum products, petroleum derivatives and CERCLA regulated hazardous substances will prevent an area from becoming a CERFA Parcel as long as that storage is for one year or greater. The quantity of substances stored is not relevant to determining the applicable parcel category. However, if the operation requiring such substances is in the immediate area, and the storage is in limited quantities for immediate use, the area is not precluded from being a CERFA Parcel.
- Non-leaking equipment containing less than 50 ppm PCBs does not preclude an area from becoming a CERFA Parcel. Non-leaking, out-of-service equipment with greater than 50 ppm PCBs will place an area in the CERFA Qualified Parcel category. An area is designated CERFA Disqualified if there is a known release containing greater than 50 ppm PCBs.
- Areas where there are transport systems or process equipment which handle hazardous material or petroleum products and upon which there have been no release, storage, or disposal are categorized as CERFA Parcels.
- Ordnance disposal locations are designated CERFA Disqualified. This does not include ordnance impact areas which are designated CERFA Qualified Parcels.
- Routine pesticide and herbicide application in accordance with manufacturer's directions and chlorofluorocarbons and halon in operational systems do not preclude an area from becoming a CERFA Parcel.
- Coal storage piles and railroad tracks do not be themselves preclude an area from becoming a CERFA Parcel.

5.1 CERFA CATEGORY AND DESIGNATION MAP

Table 5.1-1 and Figure 5.1-1 identify the breakdown of the former Nike site according to the criteria for parcel identification under CERFA.

Table 5.1-1
Former Nike Missile Site
Aberdeen Proving Ground, Maryland

PARCEL NUMBER SIZE	NAME AND LOCATION	CATEGORY	BASIS	SOURCE OF EVIDENCE	REMEDIATION
1D-HS/HR/ PS/PR/A/ L(P)/X(P) (102.22 acres)	Entire site (100 acres)	Disqualified Qualified	Chemical UXO (P) Conventional UXO (P)	Enhanced PA (1990), RFI (1990) 1993 UXO survey	UXO survey completed
	Six missile silos (Bldg. #s 6881-6886) Coordinates: 16,4	Disqualified	Standing water in silos contaminated w/lead - RCRA hazardous waste.	Enhanced PA (1990) RFI (1990) Remediation Work Plan (1992) 1993 Sampling	Water removed, silos encapsulated with grout (cement/fly ash mixture) and paved over with asphalt.
		Qualified	Asbestos in cement	Enhanced PA (1990) RFI (1990)	
			Lead paint.	9/93 Site Visit	
	Bldgs 6871, 6873 (launch area missile maintenance complex) Coordinates: 14,15	Disqualified	8,000 gallon diesel fuel UST on the west side of 6871 found to be leaking and removed in 1991.	Enhanced PA (1990) RFI (1990) APG POL storage records	8000 gallon diesel fuel UST & soil removed in April 1991.
			Documented disposal practices in launch area include surface dumping of spent solvents (particularly TCE).	Enhanced PA (1990)	
		Qualified	Asbestos (P)	Enhanced PA (1990) RFI (1990)	
			Lead paint (P)	9/93 Site Visit	

Table 5.1-1
Former Nike Missile Site
Aberdeen Proving Ground, Maryland

PARCEL NUMBER SIZE	NAME AND LOCATION	CATEGORY	BASIS	SOURCE OF EVIDENCE	REMEDIATION
	Bldg 6812 (barracks) Coordinates: 3,6	Disqualified	1,500 gal fuel oil UST active on W side	APG POL active storage records	
		Qualified	Asbestos	Enhanced PA (1990) RFI (1990)	
			Lead paint (P)	9/93 Site Visit	
	Bldg 6811 (barracks) Coordinates: 4,6	Disqualified	2,000 gal fuel oil UST active on SW corner	APG POL active storage records	
		Qualified	Asbestos	Enhanced PA (1990) RFI (1990)	
			Lead paint (P)	9/93 Site Visit	
	Bldg 6810 (barracks) Coordinates: 2,7	Disqualified	2,000 gal fuel oil UST active on S corner and 2,000 gal fuel oil UST active on NW corner.	APG POL active storage records	
		Qualified	Asbestos	Enhanced PA (1990) RFI (1990)	Some asbestos reported removed in 1984 from Bldg 6810 machine room.
			Lead paint (P)	9/93 Site Visit	
	Flammable Materials Storage (Bldg 6870)	Disqualified	POL Storage	Enhanced PA (1990) RFI (1990)	
		Qualified	Asbestos (P)	Enhanced PA (1990) RFI (1990)	
			Lead paint (P)	9/93 Site Visit	

Table 5.1-1
Former Nike Missile Site
Aberdeen Proving Ground, Maryland

PARCEL NUMBER (SIZE)	NAME AND LOCATION	CATEGORY	BASIS	SOURCE OF EVIDENCE	REMEDIATION
	General Storage (Bldg 6876)	Disqualified	Acid Storage	Enhanced PA (1990) RFI (1990)	
		Qualified	Asbestos (P)	Enhanced PA (1990) RFI (1990)	
			Lead paint (P)	9/93 Site Visit	
	Launch area from Bldg 6870 east to boundary Coordinates: 17,A Size: 22 acres	Disqualified	Ground water contamination with organics, particularly TCE, confirmed by 1993 RI data and previous sampling.	Enhanced PA (1990) RI (1993)	
	SW Landfill west of Bldg 6860 (launch area) Coordinates: 10,6 Size: 2 acres	Disqualified	Possible land disposal site. Soil samples had high metals. Further investigation will be conducted.	Enhanced PA (1990) RFI (1990) RI (1993)	
	2 Launch area missile fueling/defueling areas: Bldg 6875 and opposite end of launch area Coordinates: 14,A/18,3	Disqualified	Evidence of ground contamination from spills & disposal reported in previous investigations.	Enhanced PA (1990) RFI (1990)	
	Bldg 6814 (barracks) Coordinates: 3,7	Qualified	Asbestos	Enhanced PA (1990) RFI (1990)	
			Lead paint (P)		

Table 5.1-1
Former Nike Missile Site
Aberdeen Proving Ground, Maryland

PARCEL NUMBER (SIZE)	NAME AND LOCATION	CATEGORY	BASIS	SOURCE OF EVIDENCE	REMEDIATION
	Launch area sanitary sewer line Coordinates: 5,2 to 14,5	Qualified	Asbestos	Enhanced PA (1990) RFI (1990)	
	Water Pump Station (Bldg. 6816)	Qualified	Asbestos Lead paint (P)	Enhanced PA (1993) RFI (1990)	
	Sentry Station (Bldg. 6860)	Qualified	Asbestos Lead paint (P)	Enhanced PA (1990) RFI (1990)	
	Ready Building (Bldg. 6869)	Qualified	Asbestos Lead paint (P)	Enhanced PA (1990) RFI (1990) 9/93 Site Visit	
	General Storage (Bldg. 6869)	Qualified	Asbestos Lead paint (P)	Enhanced PA (1990) RFI (1990)	

Parcel Category
D = CERFA Disqualified Parcel
Q = CERFA Disqualified Parcel
E = CERFA Excluded Parcel
P = CERFA Parcel

(P) = Possible

Disqualified Designations
PS = Petroleum Storage
PR = Petroleum Release/Disposal
HS = Hazardous Materials Storage
HR = Hazardous Materials Release/Disposal

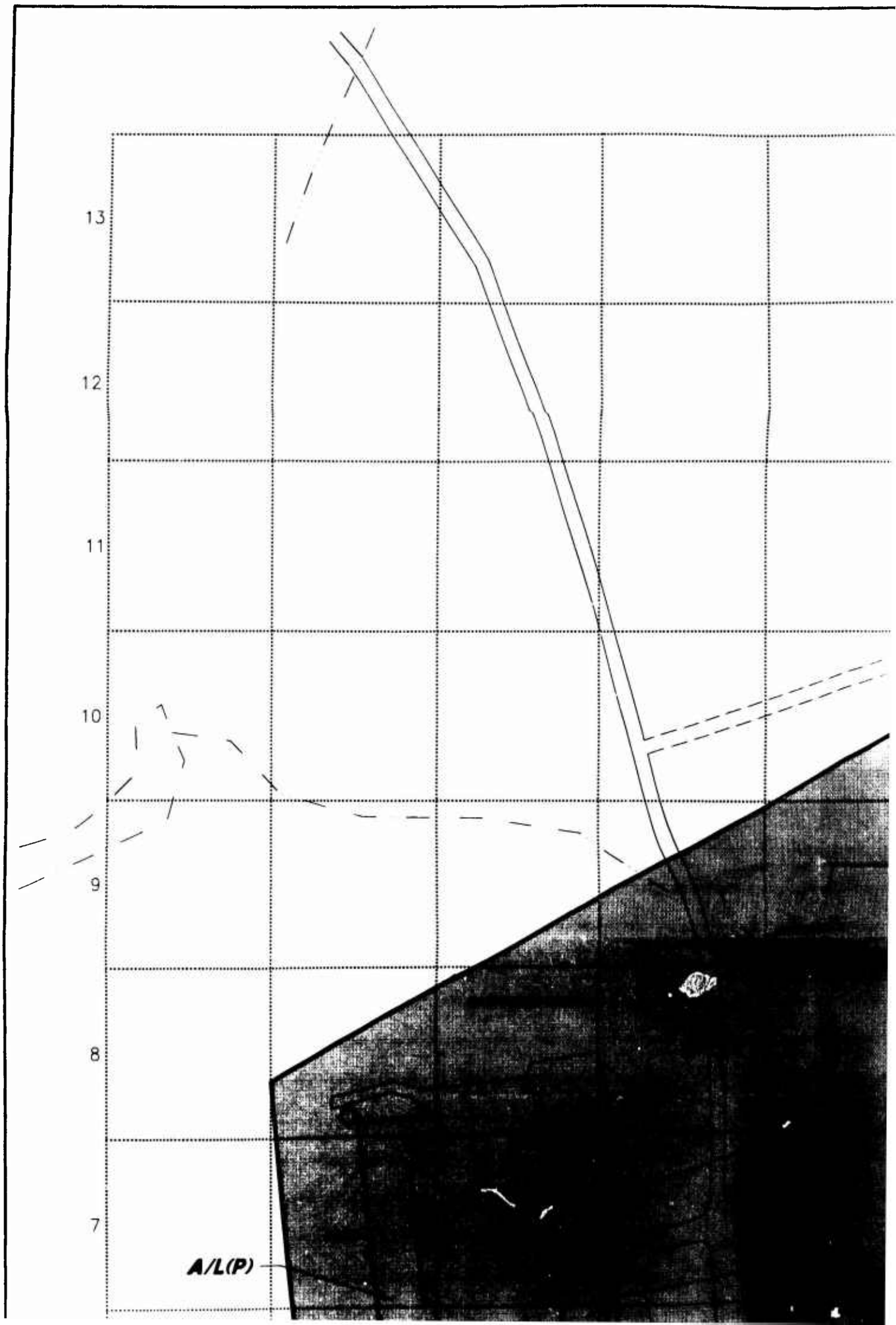
Qualified Designations
A = Asbestos
L = Lead-Based Paint
P = PCBs (Polychlorinated biphenyls)
R = Radon
X = UXO (unexploded ordnance)
RD = Radionuclides

5.2 *CERFA TRACT MAP*

The property boundaries and all property transfers including prior ownership information is shown in Figure 5.2-1.

5.3 *CERFA PARCEL DESIGNATORS*

Figure 5.3-1 summarizes the breakdown of the former Nike site according to the criteria for parcel identification under CERFA.


13
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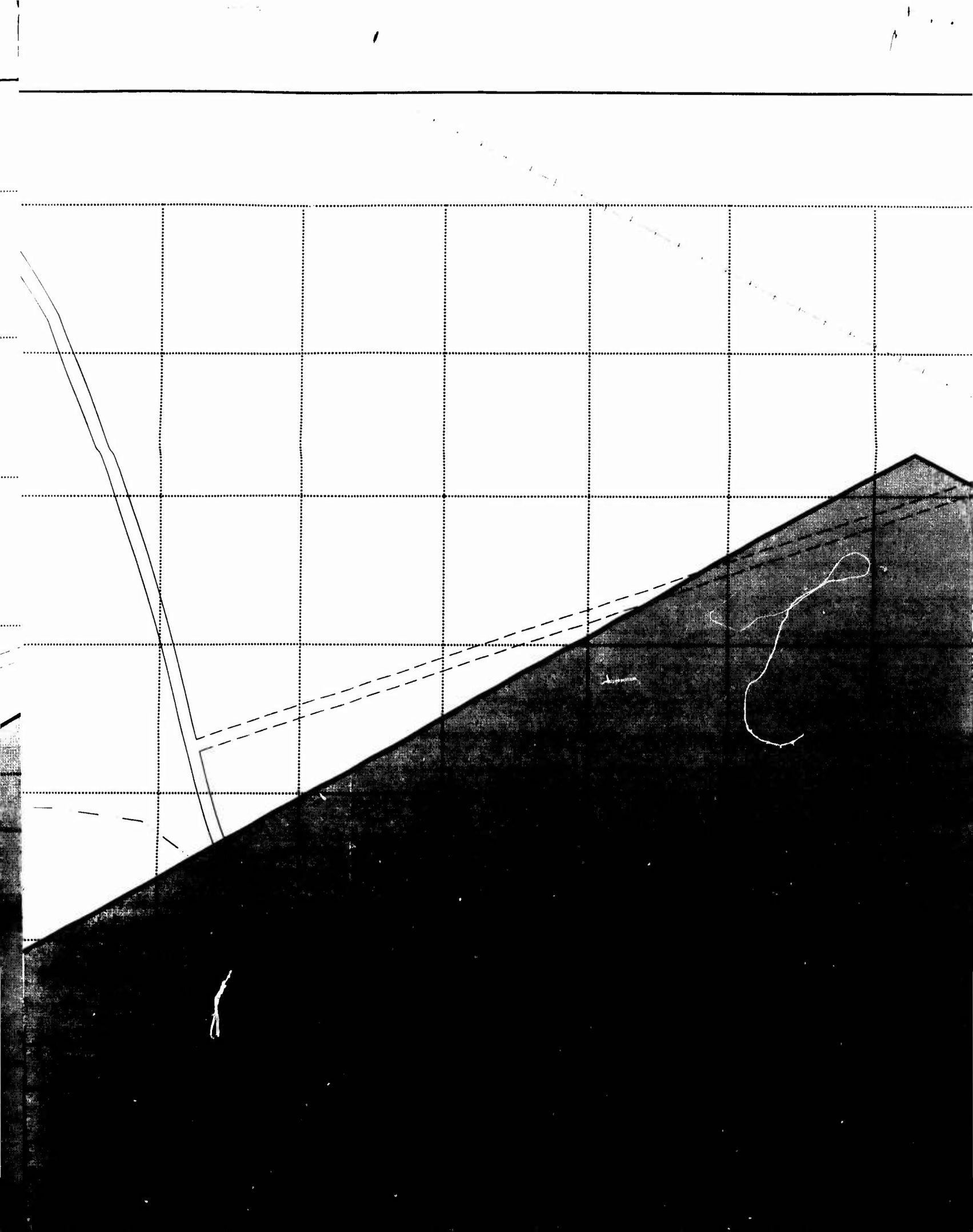
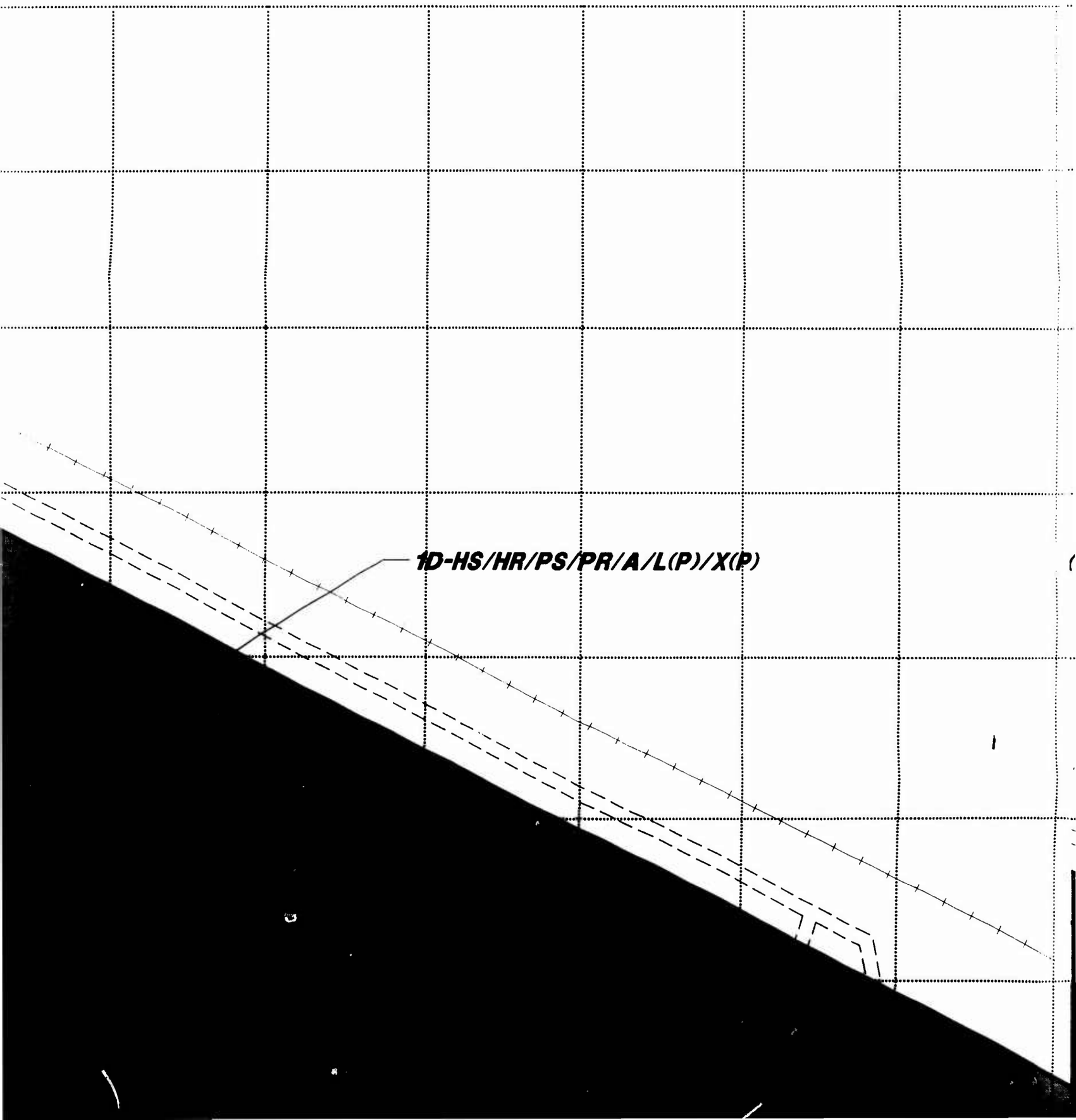
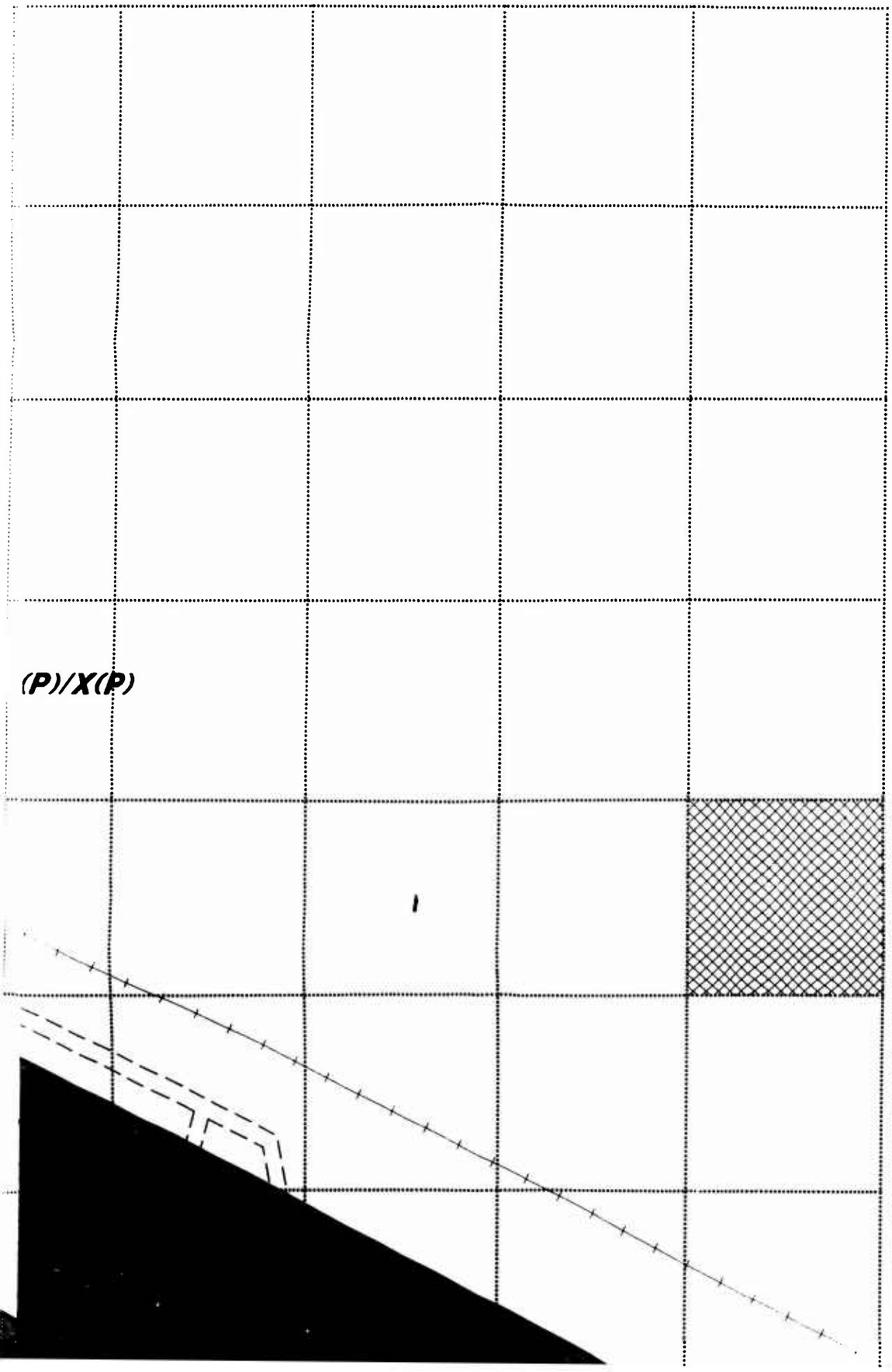
7
A/L(P)




1D-HS/HR/PS/PR/A/L(P)/X(P)



(P)/X(P)

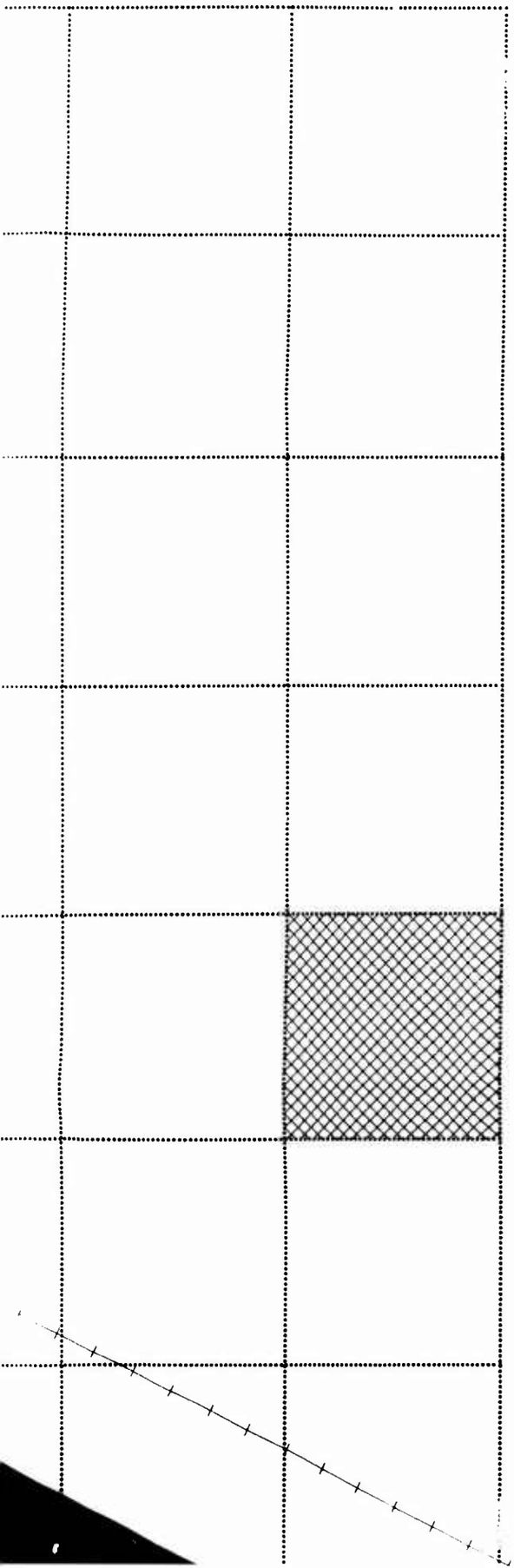
ONE ACRE GRID SQUARE
COORDINATE LOCATION: 20,9

LEGEND:

CERFA DISQUALIFIE
CERFA QUALIFIED
CERFA EXCLUDED
CERFA PARCEL

PARCEL LABEL

5D-PR/HR



ONE ACRE GRID SQUARE
COORDINATE LOCATION: 20,9

LEGEND:

CERFA DISQUALIFIED

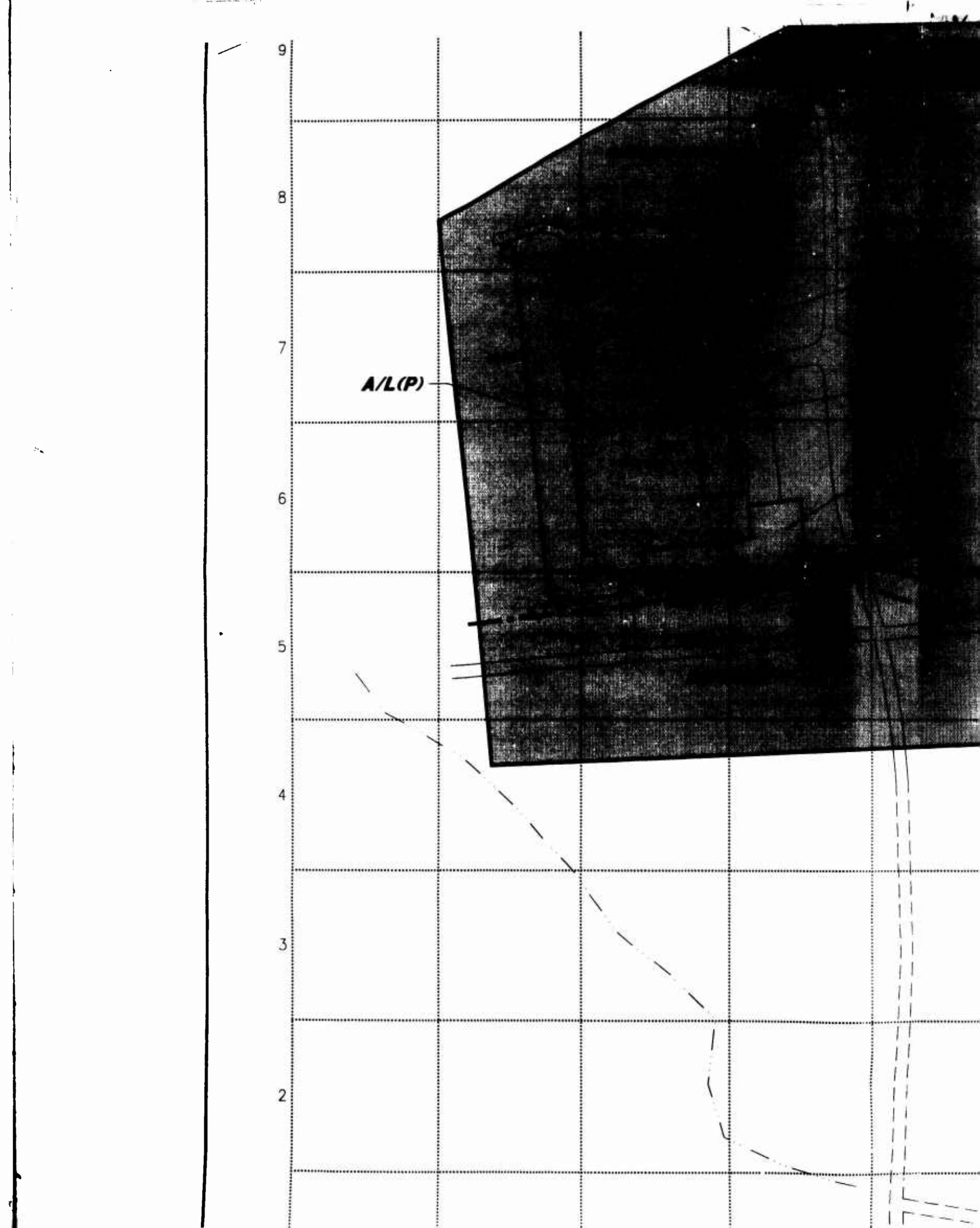
CERFA QUALIFIED

CERFA EXCLUDED

CERFA PARCEL

PARCEL LABEL

5D-PR/HR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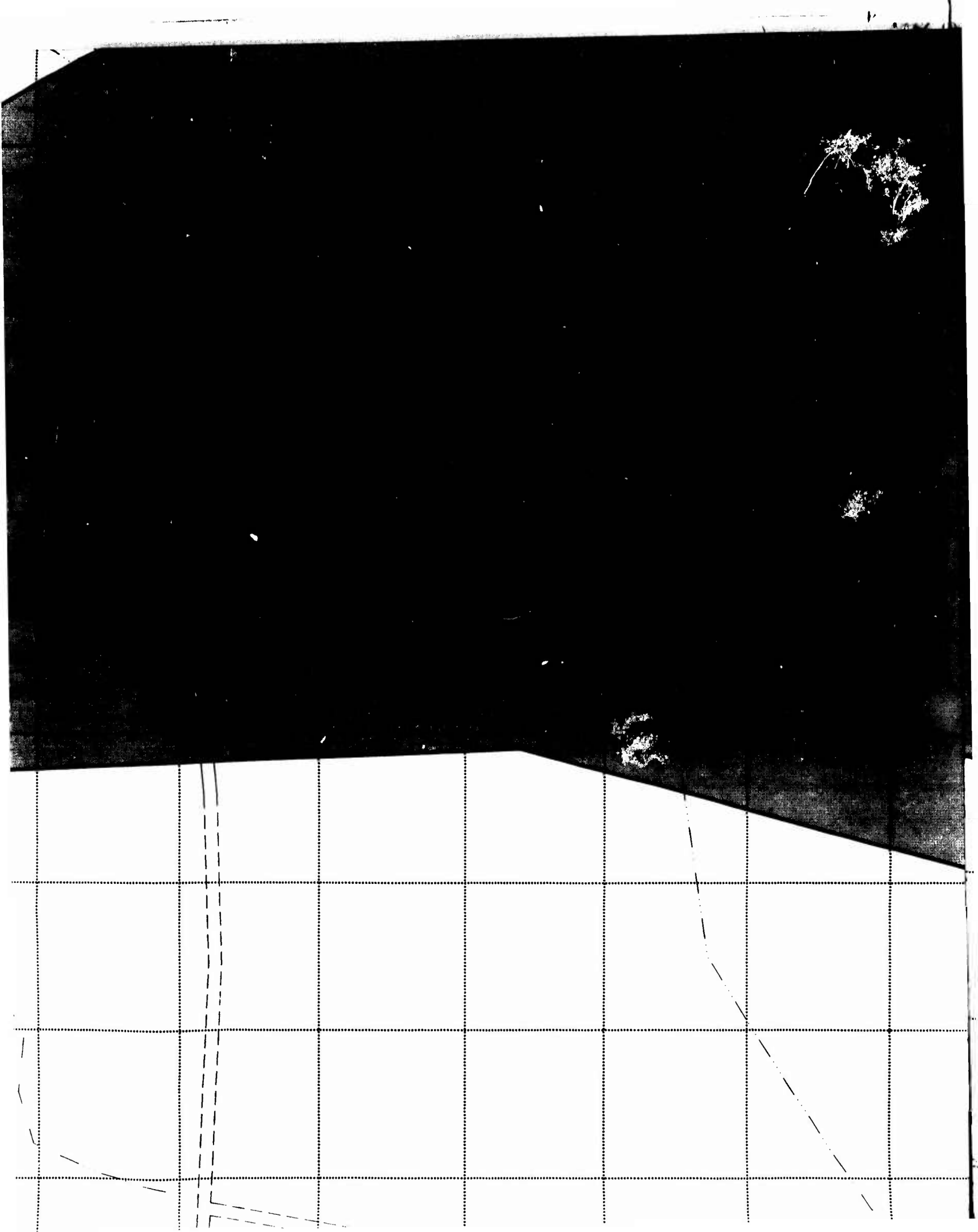
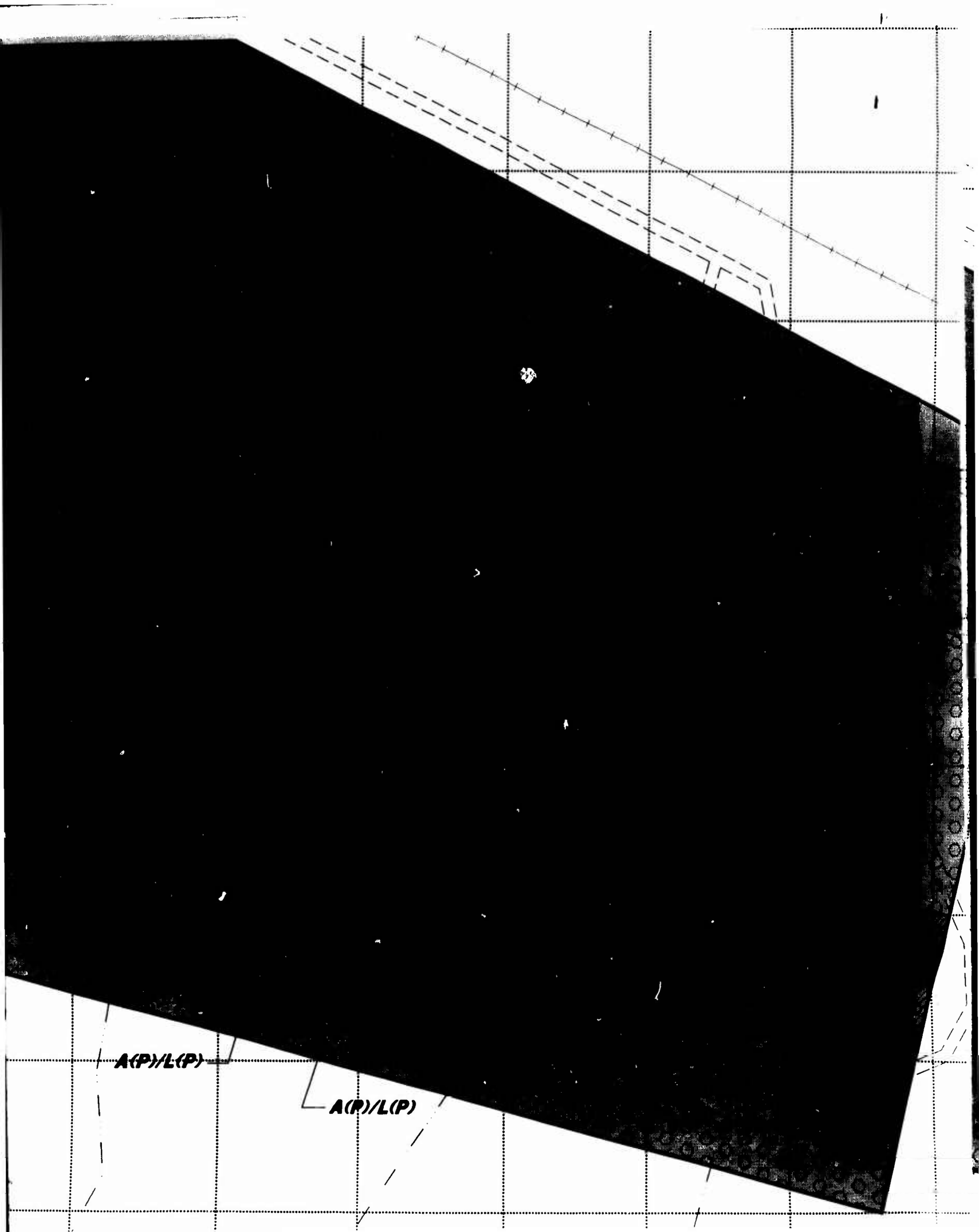
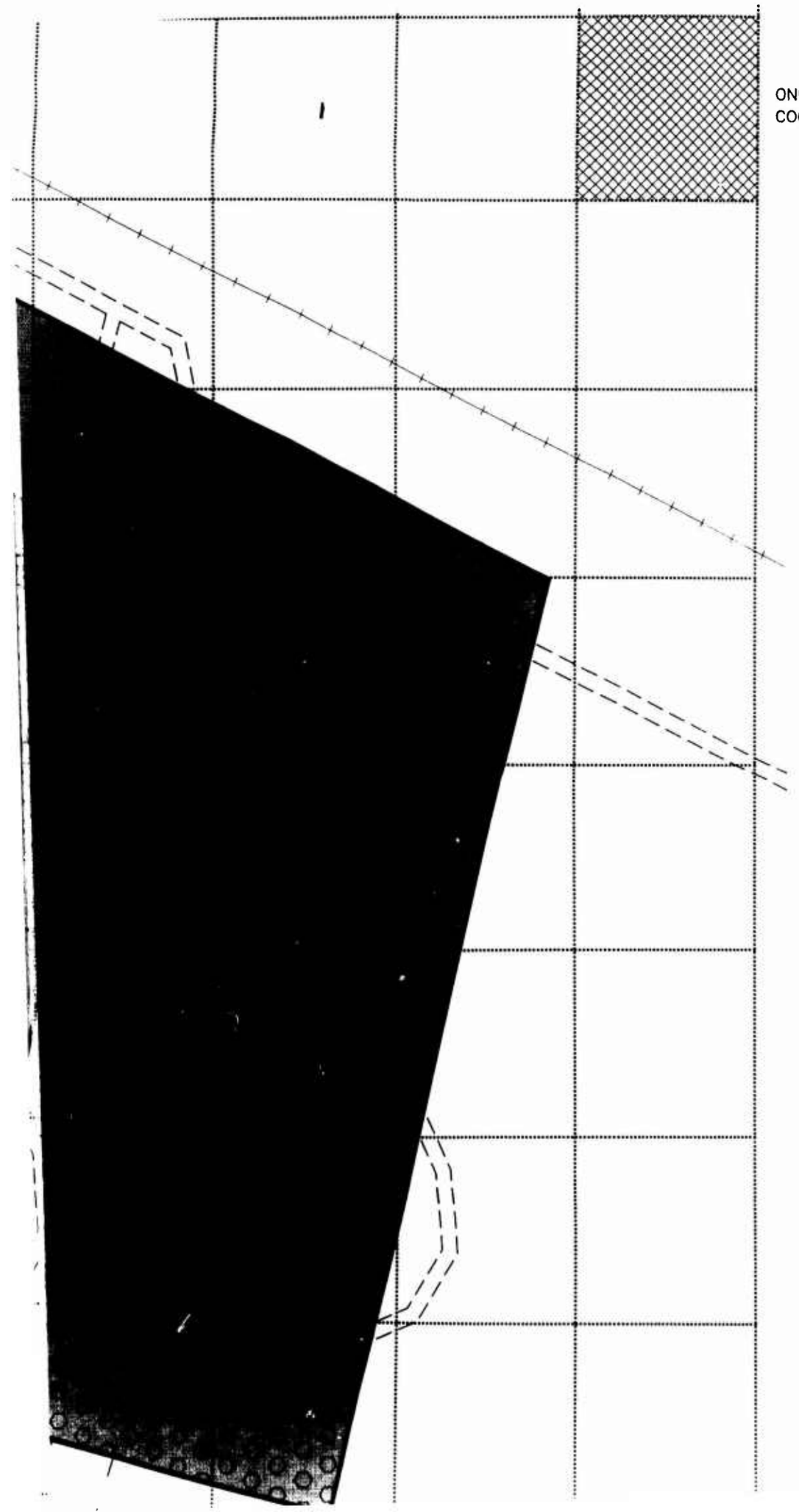
A/L(P)




A(P)/L(P)


A(P)/L(P)
A(P)/L(P)



ONE ACRE GRID SQUARE
COORDINATE LOCATION: 20,9

LEGEND:

CERFA DISQUALIFIED

CERFA QUALIFIED

CERFA EXCLUDED

CERFA PARCEL

PARCEL LABEL

5D-PR/HR

- PARCEL DESIGNATION
- PARCEL CATEGORY
- PARCEL NUMBER AS NOTED ON DRAWING AND TABLE

PARCEL CATEGORY

D = CERFA DISQUALIFIED
Q = CERFA QUALIFIED PA
E = CERFA EXCLUDED PA
P = CERFA PARCEL

DISQUALIFIED DESIGNATIONS

PS = PETROLEUM STORAGE
PR = PETROLEUM RELEASE
HS = HAZARDOUS MATERIA
HR = HAZARDOUS MATERIA

QUALIFIED DESIGNATIONS

A = ASBESTOS
L = LEAD-BASED PAINT
P = PCBS (POLYCHLORINAT
R = RADON
X = UXO (UNEXPLODED OR
RD = RADIONUCLIDE

(P) POSSIBLE DISQUALIFIER/QUALIF

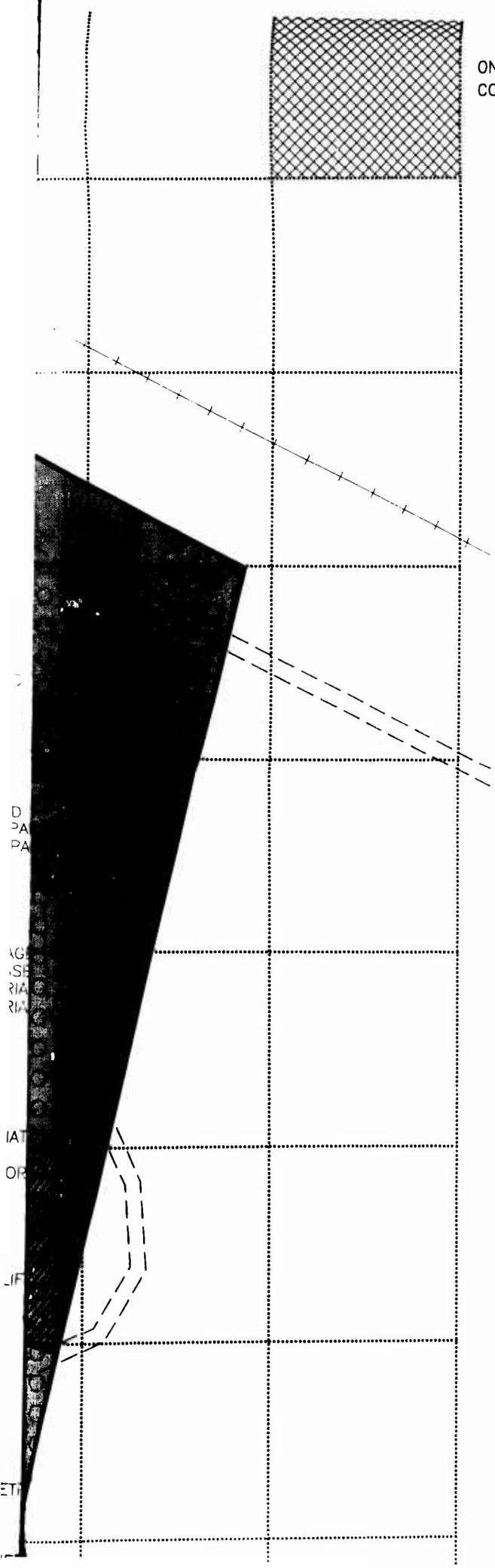
NON-LEAKING UST OR AST (FORMER OR ACTIVE)

LEAKING UST OR AST (FORMER OR ACTIVE)

RELEASE OR DISPOSAL OF PETR OR HAZARDOUS MATERIALS

6881

BUILDING WITH CERFA QUALIFIE



ONE ACRE GRID SQUARE
COORDINATE LOCATION: 20,9

LEGEND:

CERFA DISQUALIFIED

CERFA QUALIFIED

CERFA EXCLUDED

CERFA PARCEL

PARCEL LABEL

5D-PR/HR

- PARCEL DESIGNATION
- PARCEL CATEGORY
- PARCEL NUMBER AS NOTED ON DRAWING AND TABLE

PARCEL CATEGORY

D = CERFA DISQUALIFIED PARCEL
Q = CERFA QUALIFIED PARCEL
E = CERFA EXCLUDED PARCEL
P = CERFA PARCEL

DISQUALIFIED DESIGNATIONS

PS = PETROLEUM STORAGE
PR = PETROLEUM RELEASE/DISPOSAL
HS = HAZARDOUS MATERIALS STORAGE
HR = HAZARDOUS MATERIALS RELEASE/DISPOSAL

QUALIFIED DESIGNATIONS

A = ASBESTOS
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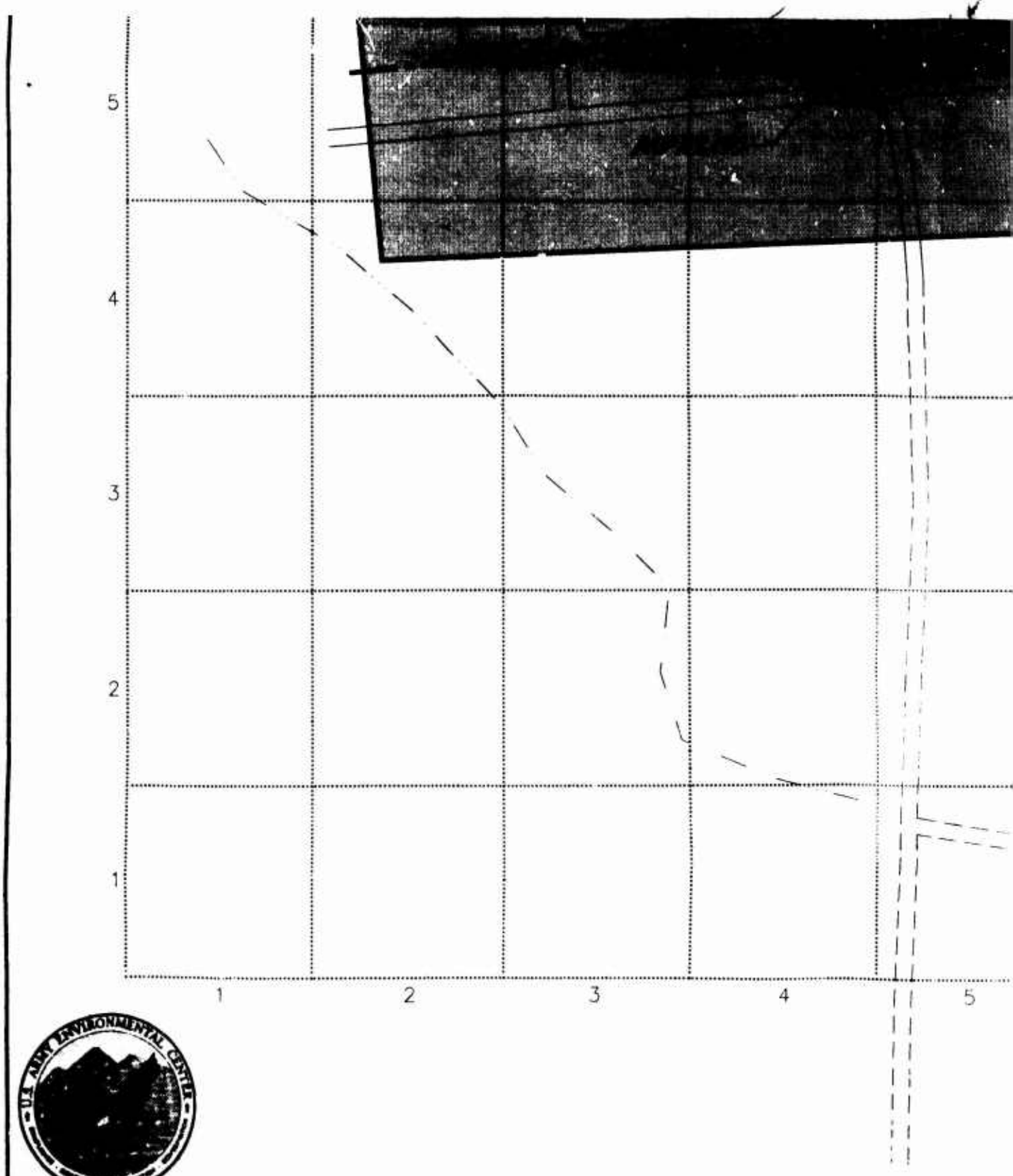
NON-LEAKING UST OR AST (FORMER OR ACTIVE)

LEAKING UST OR AST (FORMER OR ACTIVE)

RELEASE OR DISPOSAL OF PETROLEUM OR HAZARDOUS MATERIALS

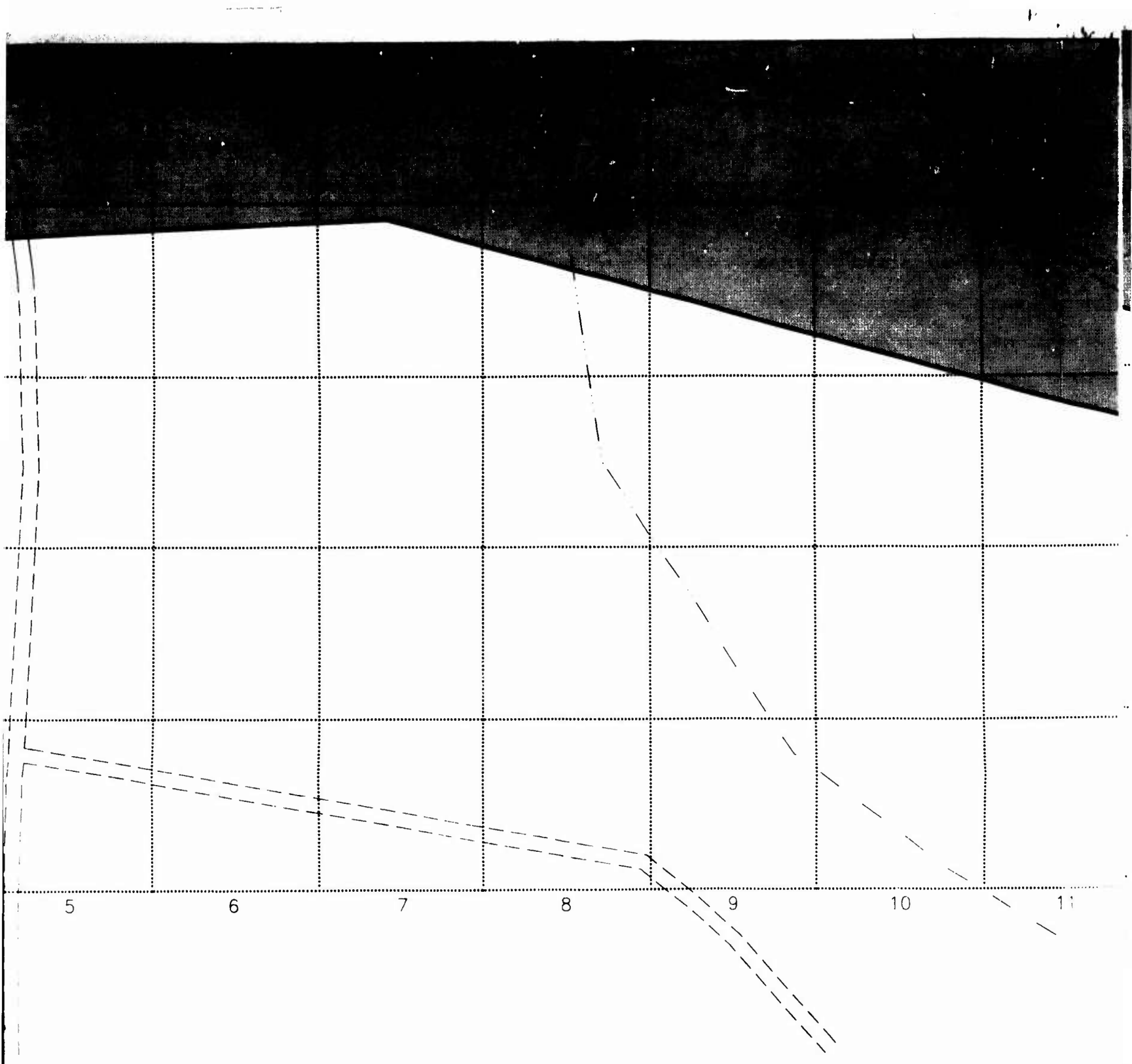
6881

BUILDING WITH CERFA QUALIFIER(S) IN A DISQUALIFIED PARCEL



U.S. ARMY ENVIRONMENTAL CENTER

NO.	DATE	APPR	REVISION	

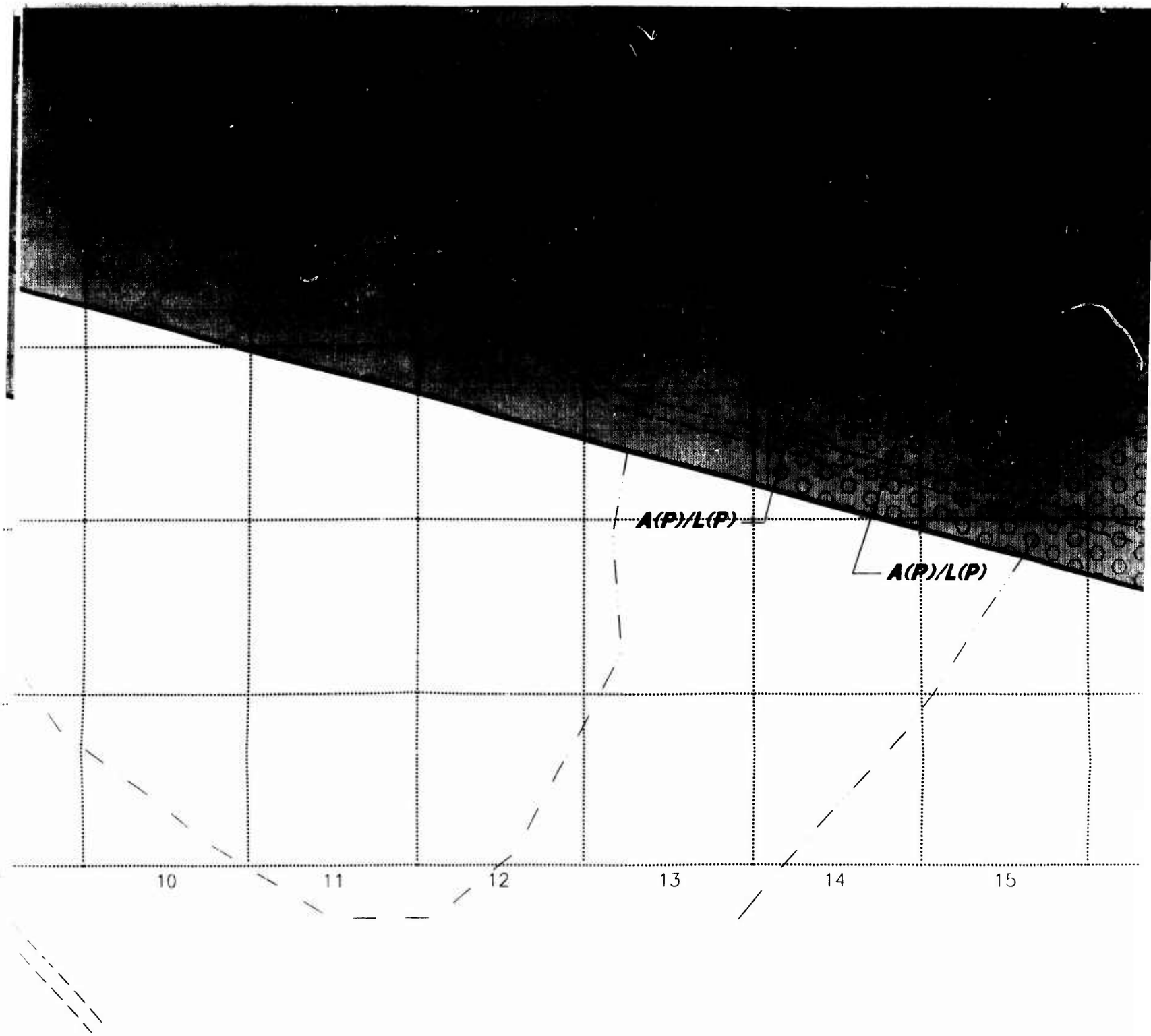


	NO.	DATE	APPR.	REVISION

Aberdeen Provin

Environmenta

Exton, Penn



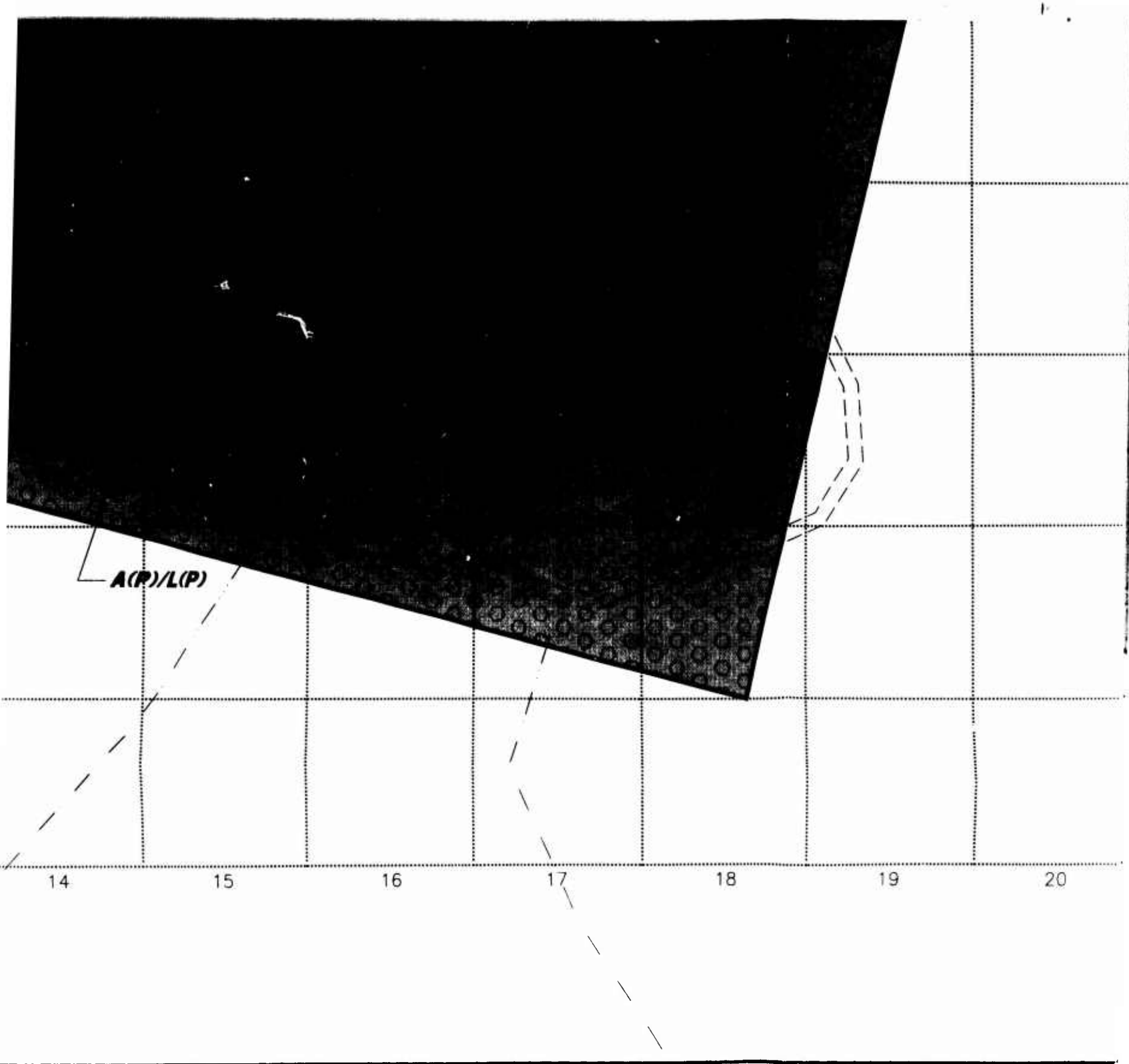
Former NIKE Site

Aberdeen Proving Ground **Maryland**

Environmental Resources Management, Inc.

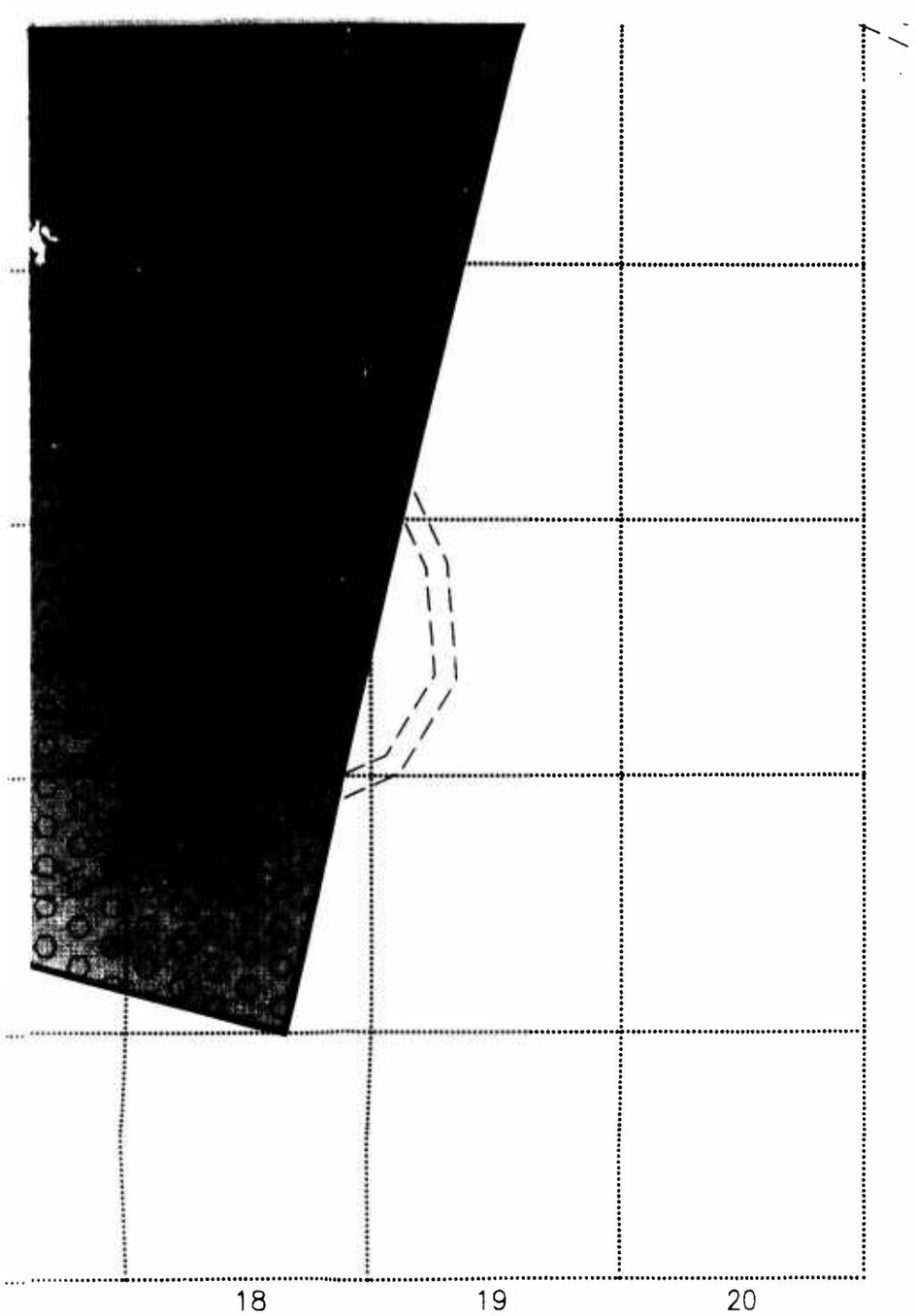
Exton, Pennsylvania 19341 (215) 524-3500

ERM



Maryland	CHECKED	DATE	**CERFA Category**
	DESIGN ENGINEER		
	PROJECT ENGINEER		
	PROJECT MANAGER		
	APPROVED		DRAWN M.K. Bond/CMP — DATE 10.25.
	APPROVED		SCALE 1" = 150' — W.O. No. PM30

ERM



Q = CERFA QUALIFIED PARCEL
E = CERFA EXCLUDED PARCEL
P = CERFA PARCEL

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PR = PETROLEUM RELEASE/DISPOSAL
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RD = RADIONUCLIDE

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LEAKING UST OR AST (FORMER OR ACTIVE)

RELEASE OR DISPOSAL OF PETROLEUM OR HAZARDOUS MATERIALS

6881
BUILDING WITH CERFA QUALIFIER(S) IN A DISQUALIFIED PARCEL

SANITARY SEWER LINE

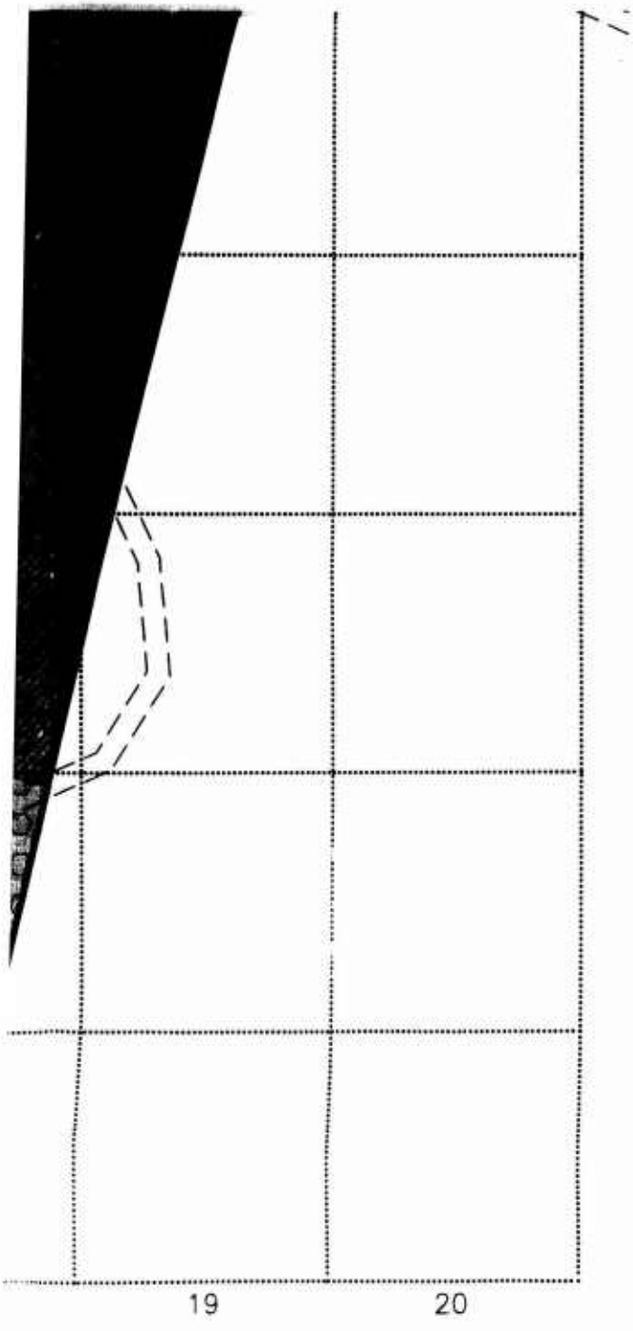
GROUND WATER CONTAMINATION AREA

MISSILE MAINTENANCE AREA

GROUND CONTAMINATION FROM MISSILE FUELING/DEFUELING AREA

150 75 0 150
Scale in Feet

	DATE				
		CERFA Category and Designation Map			DRAWING NO. **Figure**
		DRAWN M.K. Bond/CMP	DATE 10.25.93/04.06.94	CLIENT APPROVAL	
		SCALE 1" = 150'	W.O. No. PM307.70.01/A301-1	ISSUED FOR DATE	SHEET 1



Q = CERFA QUALIFIED PARCEL
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P = CERFA PARCEL

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BUILDING WITH CERFA QUALIFIER(S) IN A DISQUALIFIED PARCEL

SANITARY SEWER LINE

GROUND WATER CONTAMINATION AREA

MISSILE MAINTENANCE AREA

GROUND CONTAMINATION FROM MISSILE FUELING/DEFUELING AREA

150 75 0 150 300
Scale in Feet

CERFA Category and Designation Map

DRAWING NO.
Figure 5.1-1

REV. NO.

DRAWN M.K. Bond/CMP	DATE 10.25.93/04.06.94	CLIENT APPROVAL	
SCALE 1" = 150'	W.O. No. PM307.70.01/A301–1	ISSUED FOR DATE	SHEET 1 OF 1

NIKE Previous Owners

Tract. No.	Name of Previous Owner (Transferror)	Date of Transfer	Acreage Fee
1	Part of Edgewood Arsenal Military Reservation, United States of America	Prior to 1944	102.22

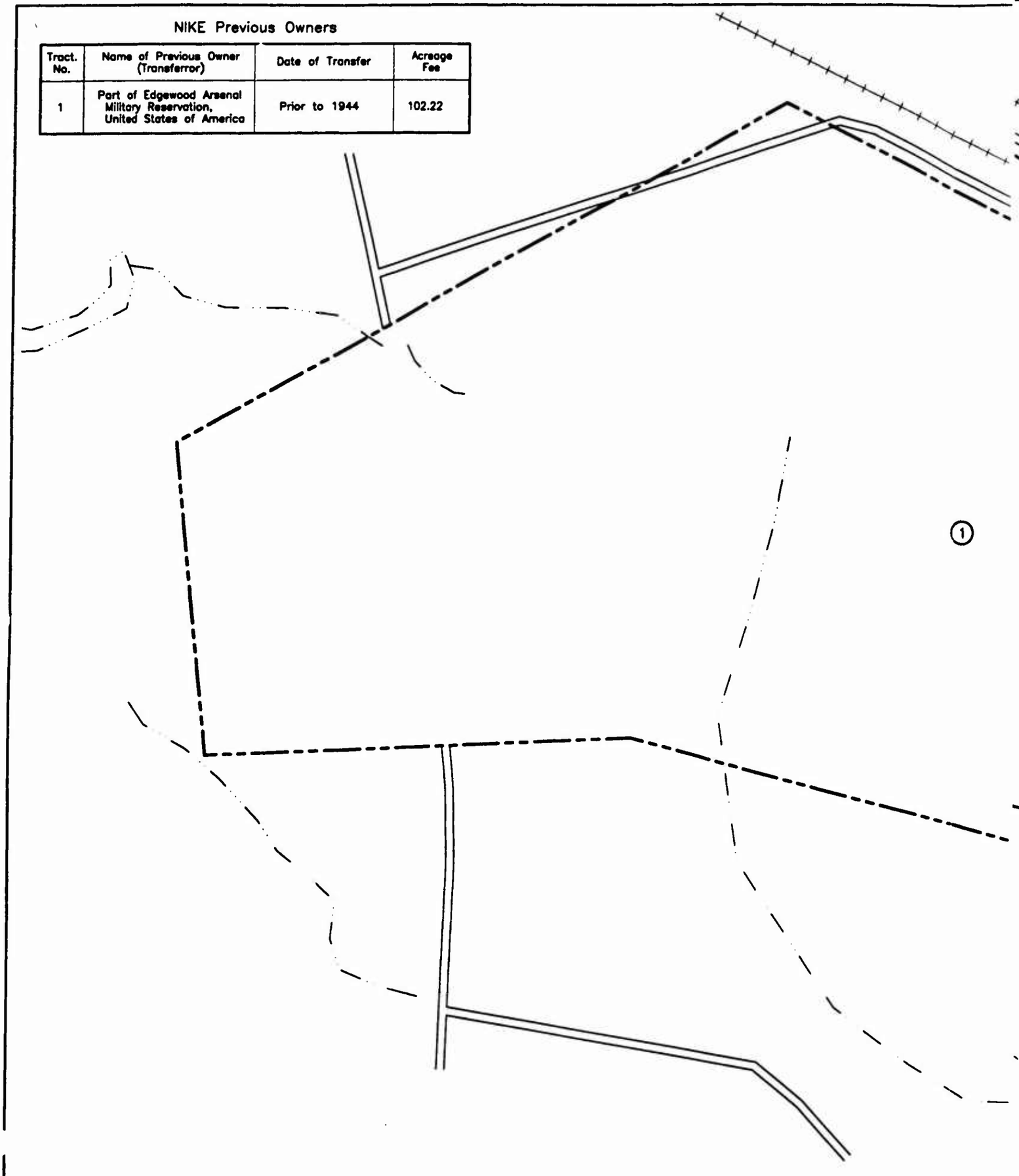
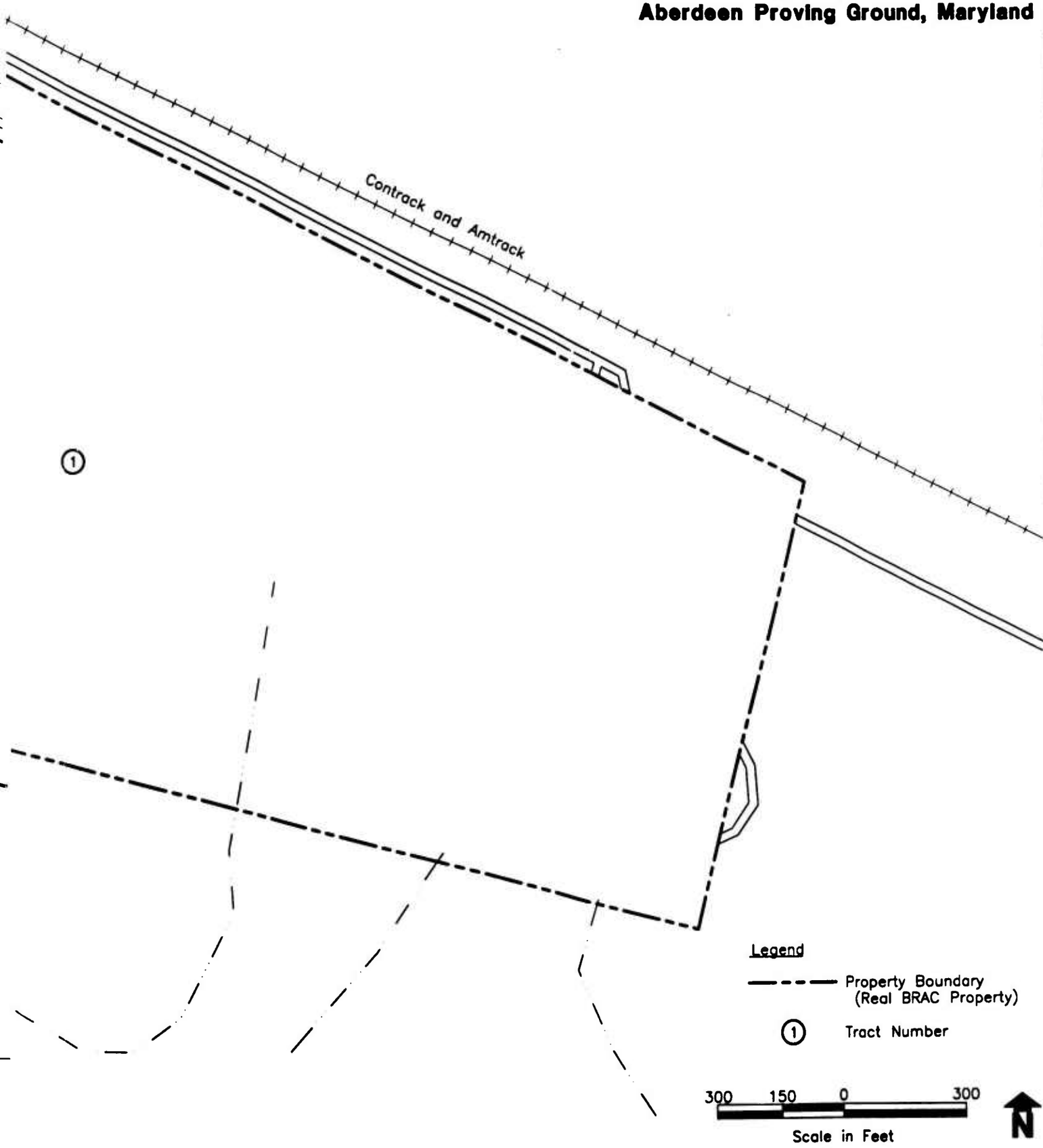
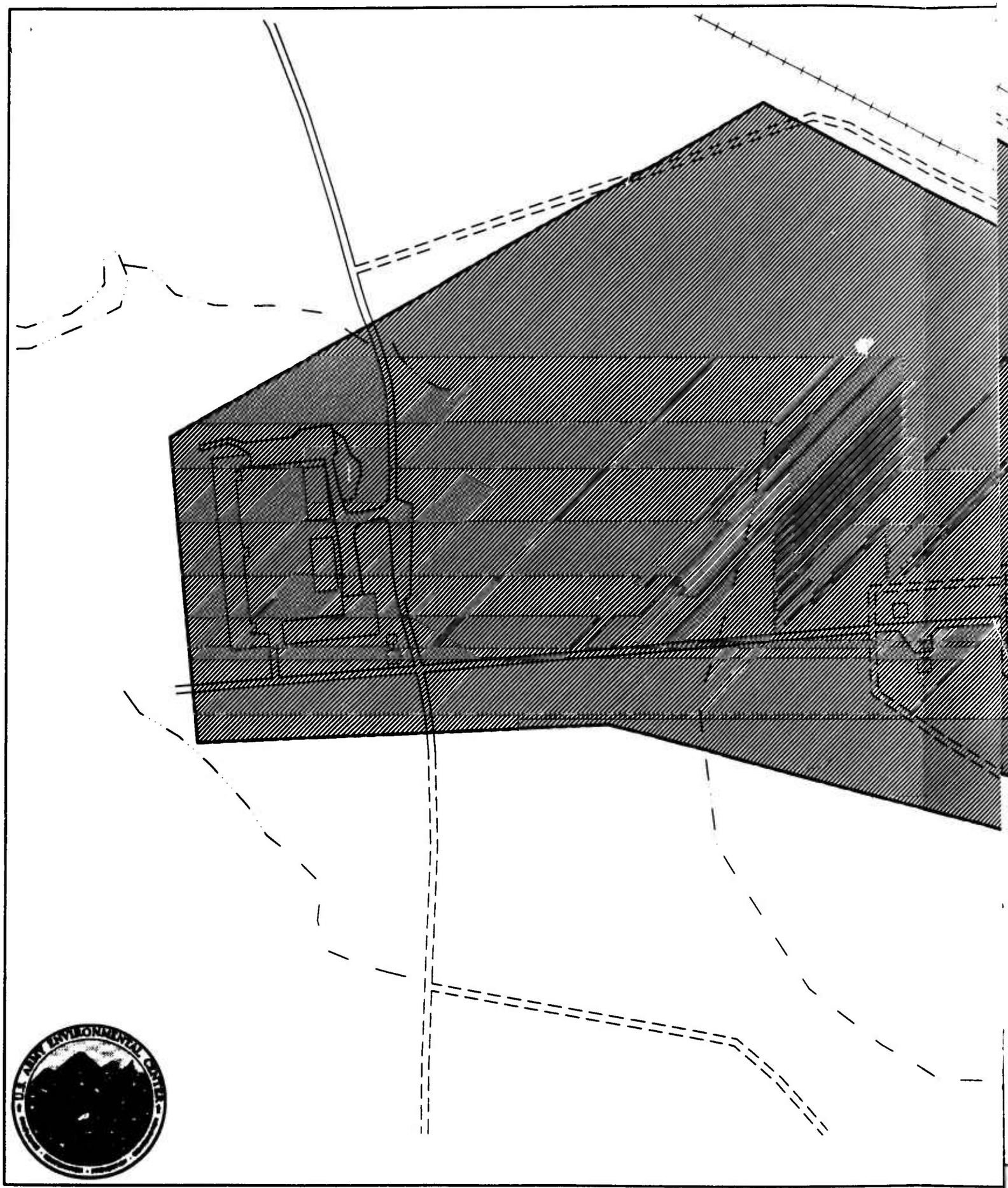


Figure 5.2-1
Tract Map
Former Nike Site
Aberdeen Proving Ground, Maryland

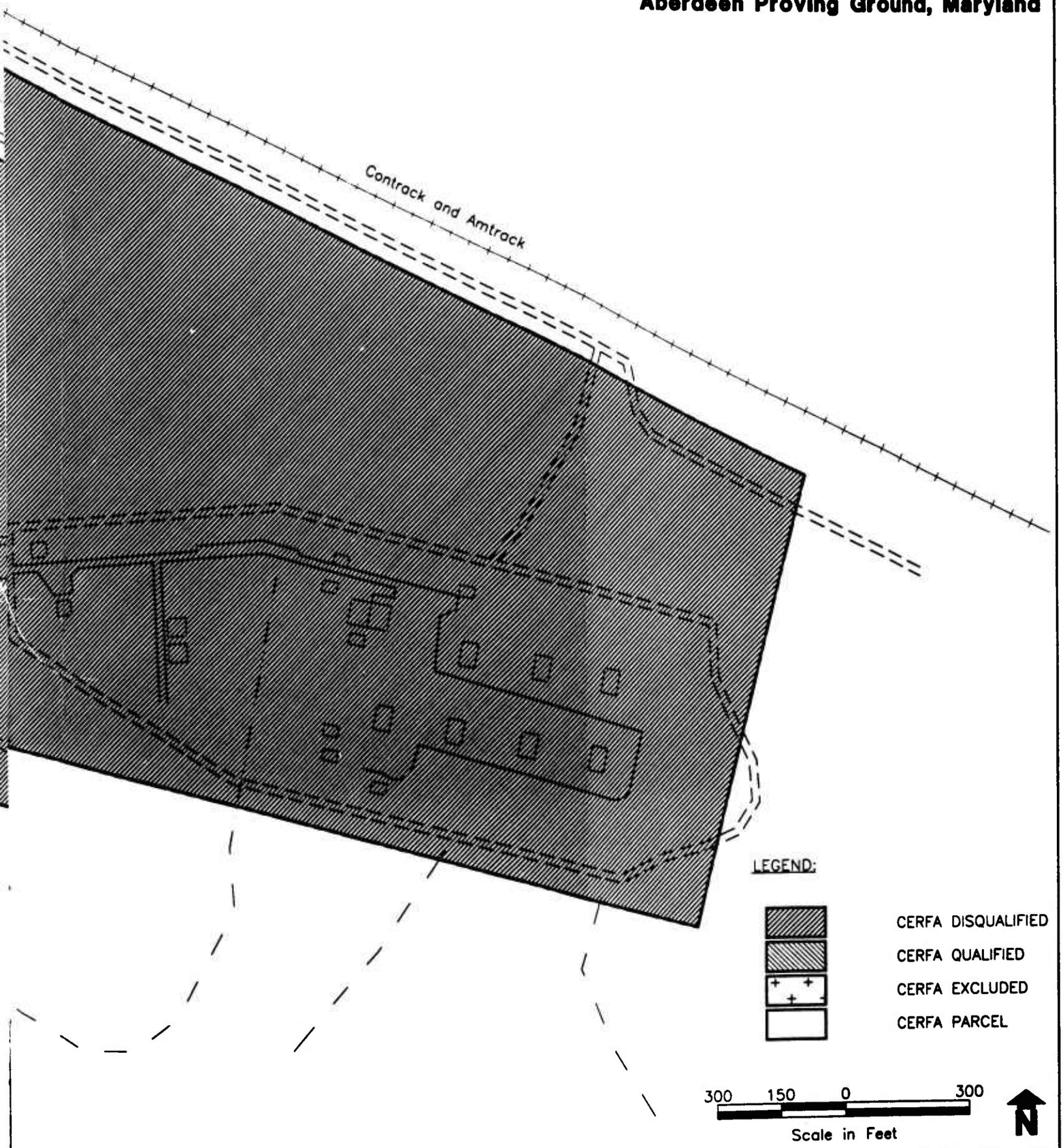


PM307.70.01/10.26.93-MKB/12.14.93-MKB/A201



THE ERM GROUP

Figure 5.3-1
CERFA Parcel Designations
Former Nike Site
Aberdeen Proving Ground, Maryland



PM307.70.01/10.26.93-MKB/04.05.94-CMP/A201

APPENDIX

MARYLAND DEPARTMENT OF THE ENVIRONMENT
2500 Broening Highway • Baltimore, Maryland 21224
(410) 631-3000

William Donald Schaefer
Governor

David A.C. Carroll
Secretary

March 24, 1994

RW 3-28-94

Lieutenant Colonel Paul E. Wojciechowski
Acting Chief, Base Closure Division
United States Army Environmental Center
Aberdeen Proving Ground MD 21005-5401

Dear Colonel Wojciechowski:

The Environmental Response and Restoration Program of the Waste Management Administration (WAS) has conducted a review of the Community Environmental Response Facilitation Act (CERFA) document Former Nike Site, Aberdeen Proving Ground, MD. The review of our records and current understanding of the conditions at the site has not developed substantive information which can refute the findings of the Army's CERFA document.

The beneficial reuse of non-productive Federal real property is an admirable objective, which is supported by WAS and the State of Maryland. However, the release of Federal land which may be contaminated with unexploded ordnance (UXO) is a concern to the Administration. Such land should only be released for general reuse following a thorough decontamination process designed to eliminate UXO from the contaminated land.

If you have any questions concerning our response, please contact Mr. John Fairbank, Project Manager, Federal/NPL Superfund Division, at (410) 631-3440.

Sincerely,

RW Collins

Richard W. Collins, Director
Waste Management Administration

RWC/cb

cc: Mr. Robert A. DeMarco
Mr. Steve Hirsh, U.S. EPA